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United States
Department of
Agriculture

Natural
Resources
Conservation
Service

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Washington Basin Outlook Report May 1, 2001



Basin Outlook Reports and Federal - State - Private Cooperative Snow Surveys

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How forecasts are made

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snow courses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. These forecasts are coordinated between hydrologists in the Natural Resources Conservation Service and the National Weather Service. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

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Washington Water Supply Outlook

May 2001

General Outlook

Washington experienced another near normal month of precipitation during April. We also recorded increases in mountain snowpack when normally snowmelt runoff would be swelling streams and rivers across the state. Cooler than normal temperatures and increased precipitation has helped milk our meager snowpack from the life giving Cascade and Blue mountain regions, giving hope to sustained streamflows for the benefit of all water resource users. Federal agencies responsible for weather forecasts indicate an above average probability for warmer and wetter conditions over the next 1-3 month period.

Snowpack

The May 1 statewide SNOTEL readings increased but remain well below average at 70%. April snow showers brought increases to many basins and delayed normal snowmelt by 15-20 days. Since May 1 is past the time when SNOTEL sites normally reach peak snow accumulation, we see some averages increasing either by accumulation or by a slower than usual melt. In the reverse, as the spring progresses, warm temperatures and warm rain have greater capacity to cause steep and sudden declines in a shallow snowpack.

BASIN	PERCENT OF LAST YEAR	PERCENT OF AVERAGE
Spokane	71	56
Newman Lake	58	53
Pend Oreille	94	69
Okanogan	74	71
Methow	68	56
Similkameen	135	54
Wenatchee	63	61
Chelan	60	62
Upper Yakima	60	65
Lower Yakima	57	62
Ahtanum Creek	60	64
Walla Walla	95	74
Lower Snake	74	64
Cowlitz	69	82
Lewis	49	90
White	55	62
Green	62	82
Puyallup	55	62
Cedar	71	65
Snoqualmie	63	70
Skykomish	70	73
Skagit	59	48
Baker	48	56
Nooksack	53	52
Olympic Peninsula	64	52

Precipitation

During the month of April, the National Weather Service and Natural Resources Conservation Service climate stations reported near normal precipitation for most Washington river basins. The highest percent of average in the state was at Trough SNOTEL near Wenatchee. Trough reported 267% of average for a total of 3.9 inches. The average for this site is 1.46 inches for April. Basin averages for the water year increased slightly but remain dismal at only 75% of average in the Walla Walla river basins to 55% of average in Cowlitz - Lewis river basins. The highest individual site average for the water year was 90% of average at Mill Creek Dam near Walla Walla.

RIVER BASIN	APRIL PERCENT OF AVERAGE	WATER YEAR PERCENT OF AVERAGE
Spokane	143	62
Colville-Pend Oreille	131	56
Okanogan-Methow	86	56
Wenatchee-Chelan	106	58
Upper Yakima	100	58
Lower Yakima	101	56
Walla Walla	140	75
Lower Snake	140	71
Cowlitz-Lewis	103	55
White-Green-Puyallup	108	62
Central Puget Sound	98	62
North Puget Sound	82	57
Olympic Peninsula	131	63

Reservoir

Seasonal reservoir levels in Washington vary greatly due to specific watershed management practices required in preparation for irrigation season, fisheries management and power generation. Reservoir storage in the Yakima Basin was 347,600-acre feet, 56% of average for the Upper Reaches and 133,400-acre feet, 84% of average for Rimrock and Bumping Lakes. Storage at the Okanogan reservoirs was 84% of average for May 1. The power generation reservoirs included the following: Coeur d'Alene Lake, 209,500 acre feet, 85% of average and 88% of capacity; Chelan Lake, 403,600 acre feet, 90% of average and 60% of capacity; and Ross Lake at 115% of average and 53% of capacity. Above average current storage at some reservoirs is associated with management efforts to buffer potential summer shortages. Below average storage can be attributed to below average seasonal snowmelt and precipitation to date.

BASIN	PERCENT OF CAPACITY	CURRENT STORAGE AS PERCENT OF AVERAGE
Spokane	88	85
Colville-Pend Oreille	12	48
Okanogan-Methow	57	84
Wenatchee-Chelan	60	90
Upper Yakima	42	56
Lower Yakima	58	84
North Puget Sound	53	115

For more information contact your local Natural Resources Conservation Service office.

Streamflow

May forecasts indicate a slight increase in most streams, reflecting near normal precipitation conditions over the last two months. Forecasts vary from 102% of average for Mill Creek at Walla Walla to 45% of average for Snake River below Lower Granite Dam and the Similkameen River. May forecasts for some Western Washington streams include: Cedar River near Cedar Falls, 85%; Green River, 70%; and Skagit River, 69%. Some Eastern Washington streams include the Yakima River near Parker, 54%; Wenatchee River at Peshastin, 56%; and Spokane River near Post Falls, 55%. Volumetric forecasts are developed using current, historic and average snowpack, precipitation and streamflow data collected and coordinated by organizations cooperating with NRCS.

Most streamflows reported for April were well below average across the state. The Walla Walla River near Milton Freewater, had the highest flows with 144% of average. The Methow River near Pateros with 21% of average, was the lowest in the state. Other streamflows were the following percentage of average: the Priest River, 39%; the Spokane at Spokane, 43%; the Columbia below Rock Island Dam, 45%; the Cowlitz River at Castle Rock, 75%; and the Snake River below Ice Harbor Dam, 51%.

BASIN	PERCENT OF AVERAGE MOST PROBABLE FORECAST (50 PERCENT CHANCE OF EXCEEDENCE)
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Spokane	54-55
Colville-Pend Oreille	46-72
Okanogan-Methow	45-58
Wenatchee-Chelan	56-67
Upper Yakima	58-65
Lower Yakima	50-66
Walla Walla	80-102
Lower Snake	45-62
Cowlitz-Lewis	54-73
White-Green-Puyallup	70-71
Central Puget Sound	81-89
North Puget Sound	69-84
Olympic Peninsula	65-67

STREAM	PERCENT OF AVERAGE APRIL STREAMFLOWS
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Pend Oreille Below Box Canyon	40
Kettle at Laurier	33
Columbia at Birchbank	56
Spokane at Long Lake	47
Similkameen at Nighthawk	52
Okanogan at Tonasket	42
Methow at Pateros	21
Chelan at Chelan	53
Wenatchee at Pashastin	55
Yakima at Cle Elum	81
Yakima at Parker	57
Naches at Naches	45
Grande Ronde at Troy	61
SF Walla Walla near Milton Freewater	144
Columbia River at The Dalles	50
Lewis at Ariel	74
Cowlitz below Mayfield Dam	74
Skagit at Concrete	53

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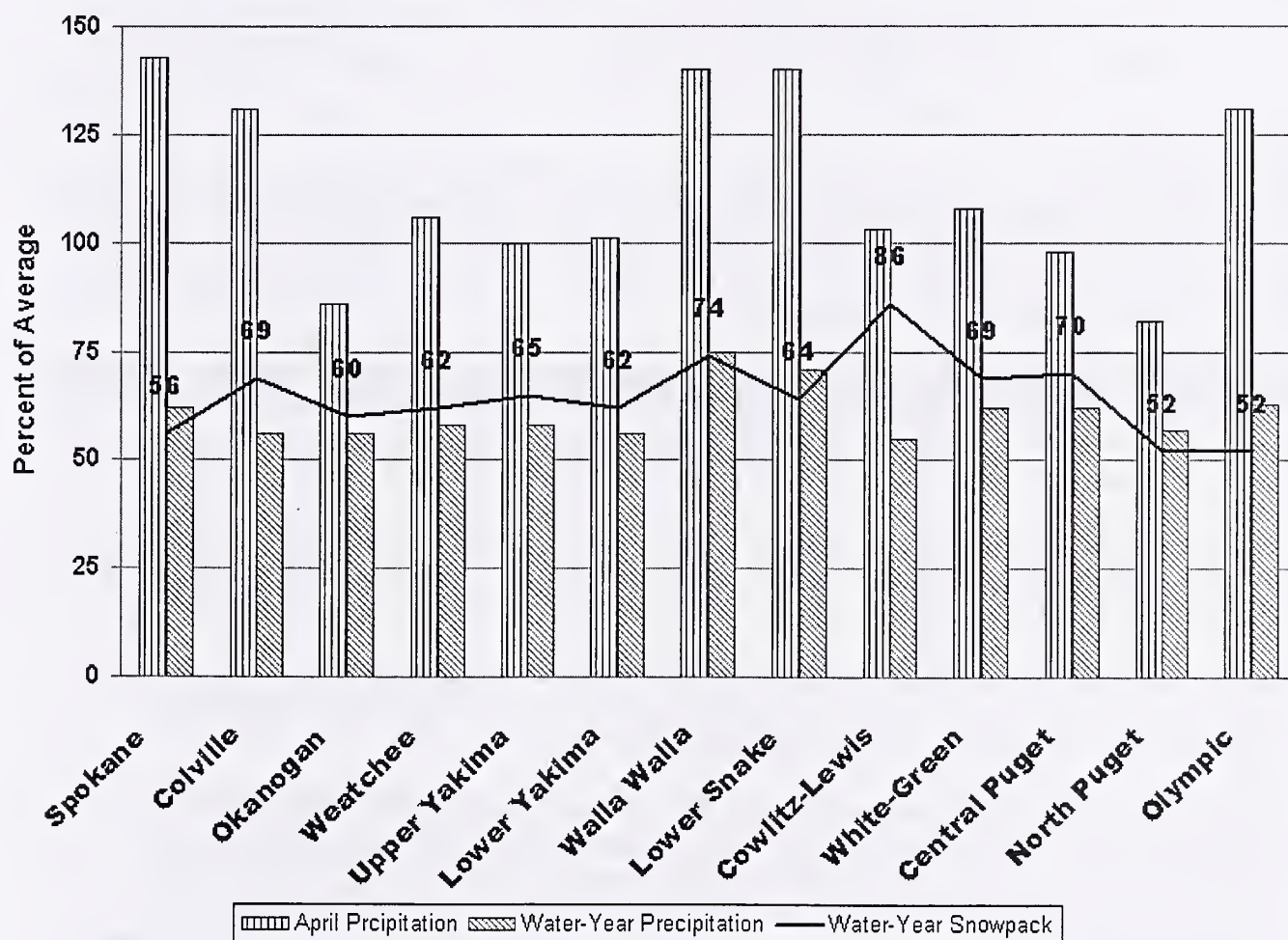
BASIN SUMMARY OF SNOW COURSE DATA

MAY 2001

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90	SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
ABERDEEN LAKE CAN.	4000	4/27/01	1	.4	.0	1.5	LONE PINE PILLOW	3800	5/01/01	---	23.8	44.0	26.4
ALPINE MEADOWS PILL	3500	5/01/01	---	41.6	55.0	42.4	LOOKOUT PILLOW	5140	5/01/01	---	17.7	26.0	29.3
AMBROSE	6480	4/26/01	29	8.9	4.5	12.1	LOST HORSE MTN CAN.	6300	4/27/01	26	7.8	6.4	9.8
ASHLEY DIVIDE	4820	5/01/01	2	.6	.0	1.0	LOST HORSE PILLOW	5000	5/01/01	13	4.0	9.2	8.2
BADGER PASS PILLOW	6900	5/01/01	---	24.4	26.1	37.8	LOST LAKE PILLOW	6110	5/01/01	---	31.0	50.6	63.0
BARRE CREEK	5500	4/25/01	67	26.6	37.9	43.0	LOWER SANDS CREEK #2	3120	4/27/01	32	13.0	19.7	16.7
BARRE MIDWAY	4600	4/25/01	58	22.6	29.9	29.4	LUBRECHT FOREST NO 3	5450	5/01/01	0	.0	.0	3.0
BARRE TRAIL	3800	4/25/01	14	7.2	3.3	1.3	LUBRECHT FOREST NO 4	4650	5/01/01	0	.0	.0	.2
BARKER LAKES PILLOW	8250	5/01/01	---	14.4	8.1	16.0	LUBRECHT FOREST NO 6	4040	5/01/01	0	.0	.0	.1
BARNES CREEK CAN.	5320	5/03/01	39	14.1	20.5	19.6	LUBRECHT HYDROPLT	4200	5/01/01	0	.0	.0	.1
BASIN CREEK PILLOW	7180	5/01/01	---	7.7	5.4	10.0	LUBRECHT PILLOW	4680	5/01/01	---	.0	.0	1.7
BEAVER CREEK TRAIL	2200	4/30/01	0	.0	2.2	4.1	LYMAN LAKE PILLOW	5900	5/01/01	---	36.5	63.6	58.7
BEAVER PASS	3680	4/30/01	23	8.9	23.3	28.1	LYNN LAKE	4000	4/27/01	39	18.2	22.2	10.7
BERNE-MILL CREEK (d)	3170	5/01/01	43	17.2	27.3	20.8	MARIAS PASS	5250	4/30/01	33	12.3	11.3	14.4
BIG CREEK	6750	4/25/01	99	37.0	---	49.8	MCCULLOCH CAN.	4200	4/27/01	0	.0	.0	---
BIG WHITE MTN CAN.	5510	4/29/01	43	13.6	19.5	19.4	MEADOWS CABIN	1900	4/30/01	0	.0	.0	1.1
BLACK MOUNTAIN	7750	4/24/01	51	15.9	10.5	17.8	MEADOWS PASS PILLOW	3240	5/01/01	---	11.0	14.6	21.0
BLACK PINE PILLOW	7100	5/01/01	---	7.6	2.6	12.0	MERRITT	2140	5/01/01	0	.0	.0	3.6
BLEWETT PASS#2PILLOW	4270	5/01/01	2	.1	.0	4.9	MICA CREEK PILLOW	4750	5/01/01	---	11.8	11.9	---
BLUE LAKE	5900	4/28/01	52	17.0	17.6	23.9	MIDDLE SULTAN	3010					13.0
BRENDA MINE CAN.	4450	5/01/01	---	3.9	1.8	9.2	MINERAL CREEK	4000	4/29/01	21	8.3	11.5	11.2
BROOKMERE CAN.	3000	4/29/01	8	2.6	1.0	4.6	MISSEZULA MTN CAN.	5080	4/30/01	7	2.0	.3	6.5
BROWN TOP AM	6000	5/01/01	82	31.6	50.6	61.7	MONASHEE PASS CAN.	4500	5/03/01	23	7.3	11.5	11.9
BRUSH CREEK TIMBER	5000	4/30/01	10	3.2	1.0	6.0	MOOSE CREEK PILLOW	6200	5/01/01	---	9.2	8.3	14.6
BULL MOUNTAIN	6600	4/27/01	0	.0	.0	3.1	MORRISSEY RIDGE CAN.	6100	5/01/01	---	17.9	20.4	28.7
BUMPING LAKE (NEW)	3400	4/30/01	0	.0	6.2	10.9	MORSE LAKE PILLOW	5400	5/01/01	---	26.2	49.5	44.4
BUMPING RIDGE PILLOW	4600	5/01/01	---	17.6	24.0	18.9	MOSES MTN PILLOW	4800	5/01/01	---	5.0	9.4	7.3
BUNCHGRASS MDWPILLOW	5000	5/01/01	---	19.0	31.8	26.9	MOSQUITO RDG PILLOW	5200	5/01/01	---	18.0	33.2	34.7
CARMI CAN.	4100	4/29/01	0	.0	.0	1.4	MOUNT CRAG PILLOW	4050	5/01/01	---	21.3	27.8	22.4
CAYUSE PASS	5300	5/01/01	---	50.0E	95.0	88.1	MT. KOBAU CAN.	5500	4/29/01	30	9.3	8.0	13.1
CHESSMAN RESERVOIR	6200	4/30/01	2	.6	.0	2.4	MOUNT GARDNER PILLOW	2860	5/01/01	---	3.1	3.0	10.8
CHICKEN CREEK	4060	4/30/01	13	4.8	8.1	3.6	N.F. ELK CR PILLOW	6250	5/01/01	---	6.8	3.5	9.6
CHINAIKUM G.S.	2500	5/01/01	0	.0	.0	1.0	NEW HOZOMEEN LAKE	2800	4/29/01	0	.0	.7	4.5
COMBINATION PILLOW	5600	5/01/01	---	1.0	.0	3.2	NEZ PERCE CMP PILLOW	5650	5/01/01	---	7.4	7.4	11.7
COPPER BOTTOM PILLOW	5200	5/01/01	---	4.3	1.5	8.1	NEZ PERCE PASS	6570	4/25/01	30	10.8	11.5	15.6
COPPER MOUNTAIN	7700	4/28/01	32	9.6	3.4	10.6	NOISY BASIN PILLOW	6040	5/01/01	---	31.9	41.8	44.0
CORRAL PASS PILLOW	6000	5/01/01	---	24.8	38.0	29.5	NORTH FORK JOCKO	6330	4/25/01	79	32.6	33.0	44.6
COTTONWOOD CREEK	6400	4/24/01	30	8.8	3.8	7.6	OLALLIE MDWS PILLOW	3960	5/01/01	---	34.9	57.1	51.0
COUGAR MTN. PILLOW	3200	5/01/01	---	10.0	18.0	9.3	OLALLIE MEADOWS	3630	5/01/01	---	29.0E	45.0	43.5
COX VALLEY	4500	4/29/01	44	17.4	33.3	39.1	OPHIR PARK	7150	4/29/01	38	12.7	7.9	17.4
COYOTE HILL	4200	5/01/01	---	2.8E	.0	3.0	OYAMA LAKE CAN.	4100	4/27/01	13	3.7	1.1	2.9
DALY CREEK PILLOW	5780	5/01/01	---	3.7	.0	5.8	PARADISE PARK PILLOW	5500	5/01/01	---	51.9	84.5	61.8
DEER PARK	5200	4/26/01	26	10.9	10.5	18.7	PARK CK RIDGE PILLOW	4600	5/01/01	51	22.3	39.4	33.6
DEVILS PARK	5900	4/29/01	65	25.0	42.2	45.0	PETERSON MDW PILLOW	7200	5/01/01	---	10.6	5.6	11.3
DISCOVERY BASIN	7050	4/24/01	34	10.4	5.2	10.0	PIGTAIL PEAK PILLOW	5900	5/01/01	---	29.4	52.0	47.7
DIX HILL	6400	4/29/01	7	2.4	.0	4.4	PIKE CREEK PILLOW	5930	5/01/01	---	16.4	17.6	27.8
DOMMERIE FLATS	2200	5/01/01	0	.0	.0	---	PIPESTONE PASS	7200	4/29/01	18	4.6	.0	5.0
EAST FORK R.S.	5400	4/25/01	0	.0	.0	.9	POPE RIDGE PILLOW	3540	5/01/01	6	2.4	5.9	1.6
EAST RAGGED SADDLE	3740	4/29/01	13	5.9	.0	5.9	POSTILL LAKE CAN.	4200	4/26/01	22	6.6	4.6	5.7
EASY PASS AM	5200	5/01/01	---	46.0E	103.0	85.4	POTATO HILL PILLOW	4500	5/01/01	---	14.8	26.4	17.0
ELBOW LAKE PILLOW	3200	5/01/01	---	17.6	36.4	27.8	QUARTZ PEAK PILLOW	4700	5/01/01	---	9.9	17.2	18.6
EMERY CREEK PILLOW	4350	5/01/01	---	8.5	7.8	8.5	RAGGED MOUNTAIN	4200	4/29/01	13	6.4	6.4	---
ENDERBY CAN.	5800	4/30/01	85	29.1	52.2	42.7	RAGGED RIDGE	3330	4/27/01	0	.0	.0	---
ESPERON CK. UP CAN.	5050	4/28/01	30	9.2	13.2	15.2	RAINY PASS PILLOW	4780	5/01/01	---	21.8	33.3	36.8
FARRON CAN.	4000	4/27/01	15	5.4	9.6	9.3	REX RIVER PILLOW	1900	5/01/01	40	15.6	26.1	23.1
FATTY CREEK	5500	4/25/01	54	19.6	19.2	23.6	ROCKER PEAK PILLOW	8000	5/01/01	---	14.0	11.0	17.7
FISH LAKE	3370	5/01/01	20	9.4	26.4	22.4	SADDLE MTN PILLOW	7900	5/01/01	---	17.3	17.1	27.6
FISH LAKE PILLOW	3370	5/01/01	28	12.1	24.3	25.0	SALMON MDWS PILLOW	4500	5/01/01	---	.0	.0	1.1
FLATTOP MTN PILLOW	6300	5/01/01	---	29.8	40.5	48.4	SASSE RIDGE PILLOW	4200	5/01/01	---	18.5	29.0	24.1
FLEECER RIDGE	7500	4/30/01	20	5.6	3.4	8.4	SAVAGE PASS PILLOW	6170	5/01/01	52	15.9	15.5	26.7
FOURTH OF JULY SUM	3200	5/01/01	0	.0	.0	.4	SAWMILL RIDGE	4700	4/27/01	43	18.3	38.0	28.2
FREEZEOUT CK. TRAIL	3500	4/29/01	3	.9	2.8	7.0	SCHREIBERS MDW AM	3400	5/01/01	---	33.0E	65.0	56.2
FROHNER MDWS PILLOW	6480	5/01/01	---	6.6	1.0	7.1	SHEEP CANYON PILLOW	4050	5/01/01	---	62.8	44.2	34.7
GRASS MOUNTAIN #2	2900	4/27/01	0	.0	.0	2.3	SILVER STAR MTN CAN.	5600	4/29/01	57	20.7	34.2	28.9
GRAVE CRK PILLOW	4300	5/01/01	---	5.9	6.8	9.0	SKALKAHO PILLOW	7260	5/01/01	---	15.4	18.2	26.2
GRAYSTOKE LAKE CAN.	5500	4/27/01	30	9.4	15.2	17.0	SKITWISH RIDGE	5110	4/27/01	40	16.7	27.1	30.3
GREEN LAKE PILLOW	6000	5/01/01	---	13.8	20.3	19.7	SKOOKUM CREEK PILLOW	3920	5/01/01	---	12.1	25.0	26.4
GREYBACK RES CAN.	4700	4/30/01	26	7.4	3.9	7.5	SLIDE ROCK MOUNTAIN	7100	4/21/01	53	12.4	7.5	17.2
GROUSE CAMP PILLOW	5380	5/01/01	---	11.0	9.2	9.2	SPENCER MDW PILLOW	3400	5/01/01	---	13.6	35.6	17.2
HAMILTON HILL CAN.	4550	4/30/01	16	5.3	5.4	11.9	SPIRIT LAKE PILLOW	3100	5/01/01	---	.0	.0	.3
HAND CREEK PILLOW	5030	5/01/01	---	7.2	1.6	8.3	SPOTTED BEAR MTN.	7000	4/25/01	34	12.0	8.0	9.6
HARTS PASS PILLOW	6500	5/01/01	67	23.3	33.4	42.0	STAHL PEAK PILLOW	6030	5/01/01	---	21.4	33.4	36.5
HELL ROARING DIVIDE	5770	4/27/01	54	19.4	29.3	30.1	STAMPEDE PASS PILLOW	3860	5/01/01	---	26.8	46.3	39.1
HERRIG JUNCTION	4850	4/30/01	38	12.9	22.6	23.2	STEMPLE PASS	6600	4/30/01	17	5.7	6.7	10.3
HIGH RIDGE PILLOW	4980	5/01/01	---	9.1	6.7	12.4	STEVENS PASS PILLOW	4070	5/01/01	---	20.3	31.0	32.1
HOLBROOK	4530	5/01/01	---	1.5E	.0	1.7	STEVENS PASS SAND SD	3700	5/01/01	39	16.5	26.0	28.7
HOODOO BASIN PILLOW	6050	5/01/01	---	25.3	36.4	47.2	STORM LAKE	7780	4/24/01	49	13.7	9.6	15.0
HUMBOLDT GLCH PILLOW	4250	5/01/01	---	6.3	5.9	8.9	STRYKER BASIN	6180	4/30/01	57	20.2	32.4	35.8
HURRICANE	4500	5/01/01	20	3.8	12.2	21.9	SUMMERLAND RES CAN.	4200	4/30/01	2	.5	1.5	5.6
INTERGAARD	6450	4/24/01	22	6.5	.0	7.2	SUNSET PILLOW	5540	5/01/01	---	15.5	16.6	26.8
ISINTOK LAKE CAN.	5100	5/01/01	13	3.7	2.5	5.6	SURPRISE LKS PILLOW	4250	5/01/01	---	29.9	54.7	36.1
JUNE LAKE PILLOW	3200	5/01/01	---	22.1	48.7	19.6	TEN MILE LOWER	6600	4/30/01	16	4.5	.0	5.4
KIT CARSON PASTURE	4950	4/25/01	0	.0	---	---	TEN MILE MIDDLE	6800	4/30/01	34	9.5	4.5	12.4
KLESILKWA CAN.	3450	4/26/01	0	.0	---	6.9	THUNDER BASIN	4200	5/01/01	54	12.4	22.4	21.8
KRAFT CREEK PILLOW	4750	5/01/01	---	7.2	5.9	5.8	TINKHAM CREEK PILLOW	3000	5/01/01	---	17.1	22.5	16.7
LIGHTNING LAKE CAN.	3700	5/01/01	16	4.8	6.8	10.0	TOUCHET #2 PILLOW	5530	5/01/01	---	20.3	24.1	27.3
LOGAN CREEK	4300	4/27/01	16	5.0	.9	2.2	TRINKUS LAKE	6100	4/25/01	86	34.4	38.9	43.1
LOLO PASS PILLOW	5240	5/01/01	31	13.1	19.5	27.5	TROUGH #2 PILLOW	5310	5/01/01	---	5.2	.0	2.5

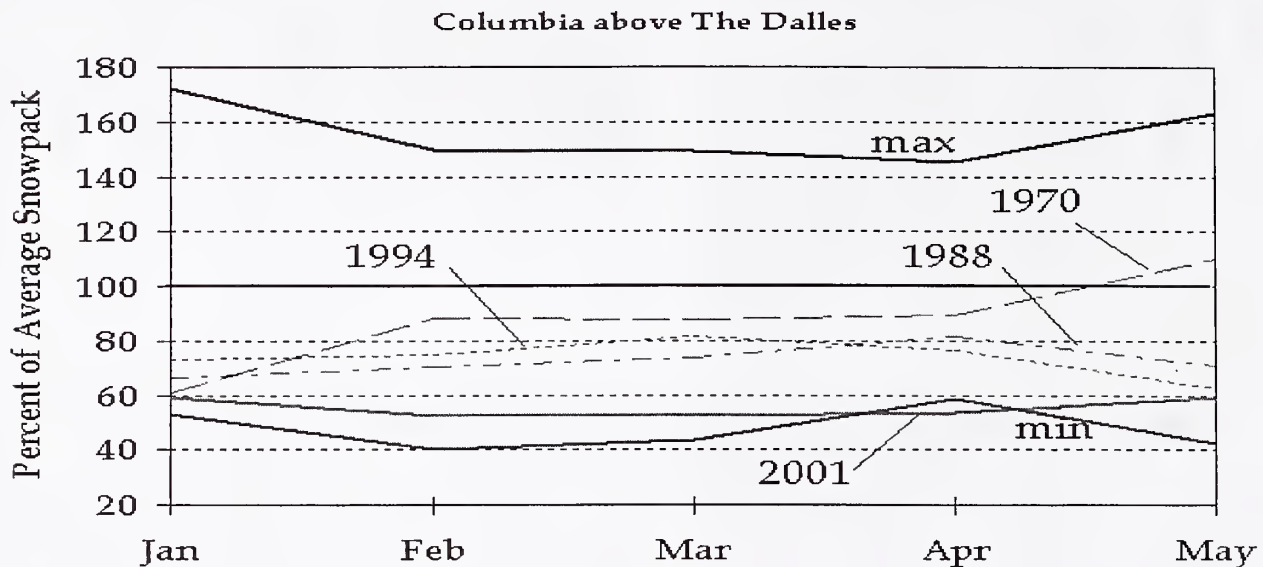
SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90	SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
TROUT CREEK CAN.	5650	4/28/01	0	.0	.0	4.3	UPPER HOLLAND LAKE	6200	4/25/01	73	26.5	35.1	35.2
TRUMAN CREEK	4060	5/01/01	0	.0	.0	.6	UPPER WHEELER PILLOW	4400	5/01/01	---	7.7	.0	4.8
TUNNEL AVENUE	2450	5/01/01	18	7.9E	10.3	12.7	VASEUX CREEK CAN.	4250	4/30/01	3	.8	.0	2.7
TV MOUNTAIN	6800	4/25/01	40	13.2	11.0	18.7	WARM SPRINGS PILLOW	7800	5/01/01	---	17.7	16.8	24.9
TWELVEMILE PILLOW	5600	5/01/01	---	2.0	.0	12.4	WATSON LAKES AM	4500	5/01/01	---	37.6E	76.0	67.2
TWIN CAMP	4100	4/27/01	23	9.7	9.5	---	WEASEL DIVIDE	5450	4/25/01	48	16.4	31.0	33.6
TWIN CREEKS	3580	4/25/01	18	6.9	3.0	1.8	WELLS CREEK PILLOW	4200	5/01/01	---	16.8	28.5	37.8
TWIN LAKES PILLOW	6400	5/01/01	---	23.4	31.9	39.8	WHITE PASS ES PILLOW	4500	5/01/01	---	11.1	18.4	18.7
TWIN SPIRIT DIVIDE	3480	4/29/01	0	.0	.0	.2	WHITE ROCKS MTN CAN.	7200	5/01/01	40	12.6	17.1	20.8

May 1 - Snowpack and Precipitation Conditions at a Glance (Water Year = October 1, 2000 - Current Date)



Columbia Basin Snowpack Summary

For the Water Year: 2001



May, 2001

On average and in most low years the Columbia Basin Snowpack percent of average declines in April as snowfall amounts lessen and melt gets started. This year has flirted with minimums of record for January through March, set the minimum for April 1, then has increased snowpack percentages across the basin, instead of the typical decline.

Since May 1 is past the time when SNOTEL sites reach peak snow accumulation, the averages are declining each day. Sub-basin percents of average can rise, therefore, either by accumulation or by a slower than usual melt. Not only that, but as the spring progresses warm temperatures and warm rain have greater capacity to cause steep and sudden declines in a shallow snowpack.

The overall Columbia Basin snowpack for May 1 is 58%, or 55% of a normal year's peak. This figure is well above the minimum in 1977-- 43% of a normal May 1 snowpack. Almost every major sub-basin of the Columbia went up during April.

Four sub-basins saw the most significant increases, these being well spread out geographically, north to south, in the Columbia. The Kootenay went up 10% to 59%, the Yakima up 10% to 69%, the Eastern Oregon Snake up 11% to 62%, and the John Day up 11% to 55%.

The remaining northern sub-basins went up about 5%, including Canada, now at 64% and the Pend Oreille at 60%. At the same time central Idaho saw an interesting situation with the Sawtooth Range forming a line of demarcation between increased and decreased snowpack percent of average. The Salmon to the north went up 7% to 54%, while the Boise and Payette to the south dropped 2% to 43%. That last represents the lowest snowpack in the Columbia for May. The Snake headwaters in Wyoming also declined 4% to 51%.

Even though April seems to have been a marked change in the pattern of the 2001 winter, these late increases will be short lived. The snowpacks are still well below normal and remain vulnerable to a rapid depletion.

For Further Columbia River Basin Information, dmoore@wcc.nrcs.usda.gov



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Helpful Internet Addresses

NRCS Snow Survey and Climate Services Homepages

Washington:
<http://www.wa.nrcs.usda.gov/snow/snow.htm>

Oregon:
<http://crystal.or.nrcs.usda.gov/snows-surveys>

Idaho:
<http://idsnow.id.nrcs.usda.gov>

National Water and Climate Center (NWCC):
<http://www.wcc.nrcs.usda.gov>

NWCC Anonymous FTP Server:
[ftp.wcc.nrcs.usda.gov](ftp:wcc.nrcs.usda.gov)

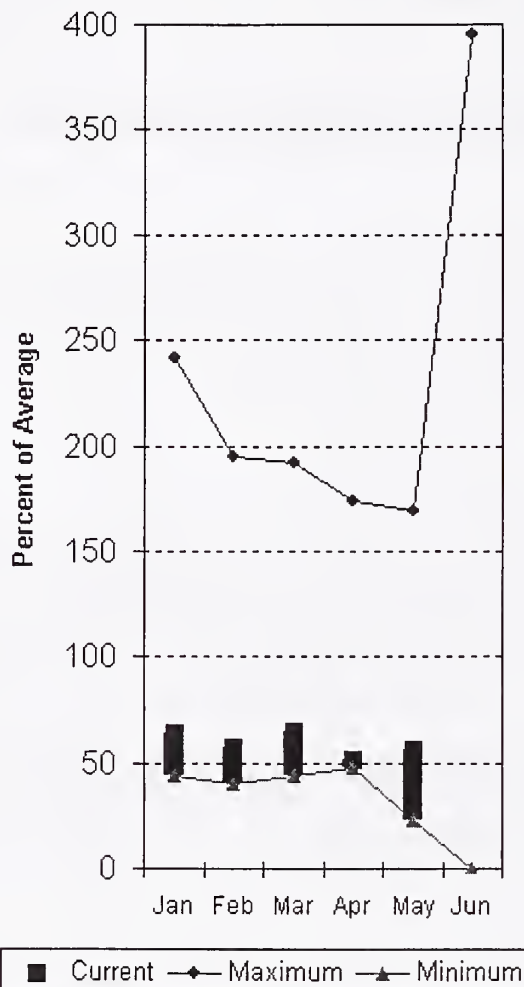
USDA-NRCS Agency Homepages

Washington:
<http://www.wa.nrcs.usda.gov/nrcs>

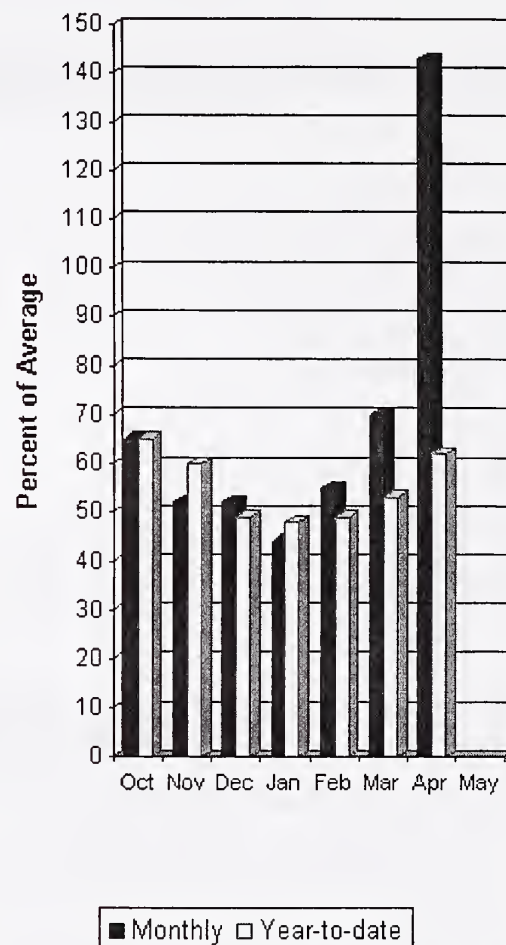
NRCS National:
<http://www.ftw.nrcs.usda.gov>

Spokane River Basin

Mountain Snowpack*



Basin Precipitation*



*Based on selected stations

The May 1 forecasts for summer runoff within the Spokane River Basin are 55% of average near Post Falls and 54% at Long Lake. The forecast is based on a basin snowpack that is 56% of average and precipitation that is 62% of average for the water year. Precipitation for April was above normal at 143% of average. Streamflow on the Spokane River at Long Lake, was 47% of average for April. May 1 storage in Coeur d'Alene Lake, was 209,500-acre feet, 85% of average and 88% of capacity. Snowpack at Quartz Peak SNOTEL site contained 9.9 inches of water, compared to the average May 1 reading of 18.6 inches. Average temperatures in the Spokane basin were 1 degree below normal for April and 3 degrees below for the water year.

For more information contact your local Natural Resources Conservation Service office.

Spokane River Basin

SPOKANE RIVER BASIN Streamflow Forecasts - May 1, 2001

		<<===== Drier ===== Future Conditions ===== Wetter =====>>						
Forecast Point	Forecast Period	Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF) (% AVG.)		30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
=====		=====		=====		=====		
SPOKANE near Post Falls (2)	MAY-SEP	602	845	1010	55	1175	1418	1840
	MAY-JUL	568	801	960	55	1119	1352	1747
SPOKANE at Long Lake (2)	MAY-JUL	600	867	1048	53	1229	1496	1972
	MAY-SEP	718	999	1190	54	1381	1662	2195

SPOKANE RIVER BASIN Reservoir Storage (1000 AF) - End of April

Reservoir	Usable Capacity	*** Usable Storage ***		
		This Year	Last Year	Avg
COEUR D'ALENE	238.5	209.5	334.5	246.7

SPOKANE RIVER BASIN Watershed Snowpack Analysis - May 1, 2001

Watershed	Number of Data Sites	This Year as % of	
		Last Yr	Average
SPOKANE RIVER	12	71	56
NEWMAN LAKE	1	58	53

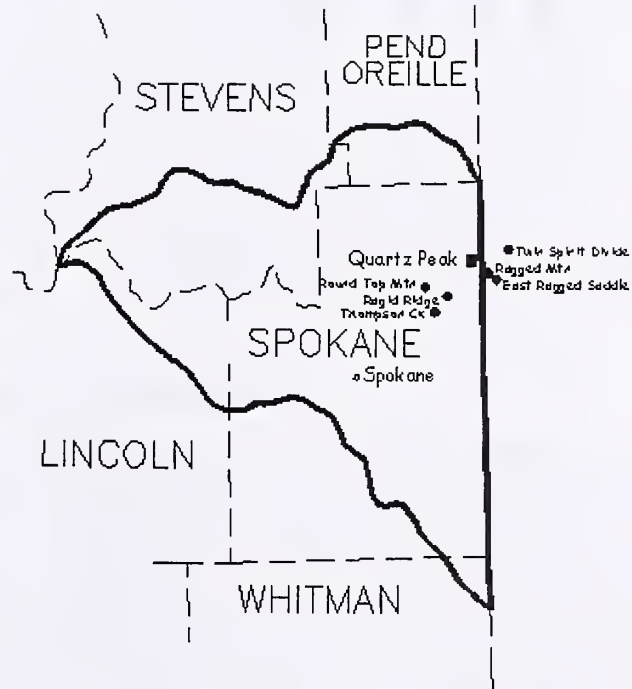
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

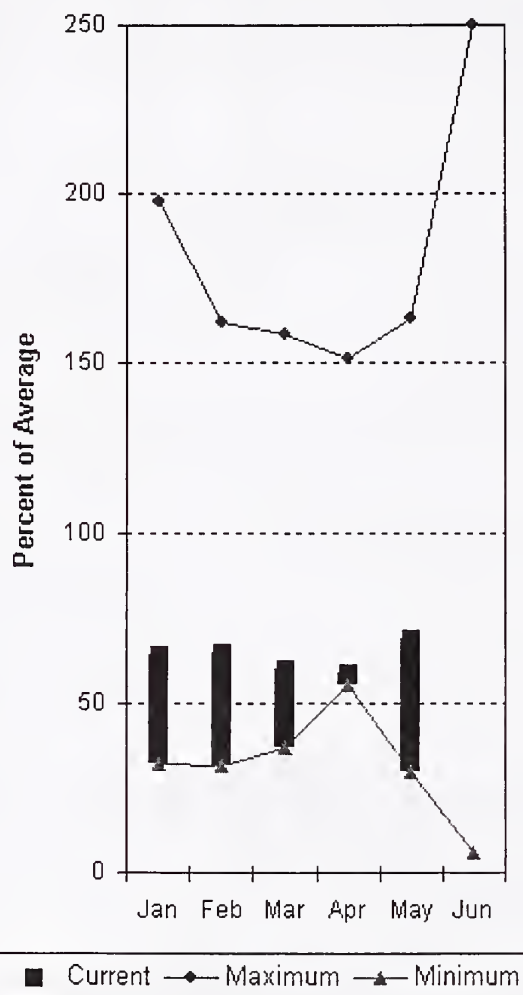
Spokane River Basin
Percent of Average
May 1, 2001

Snowpack - 56%
Precipitation - 62%
Reservoir Capacity - 88%

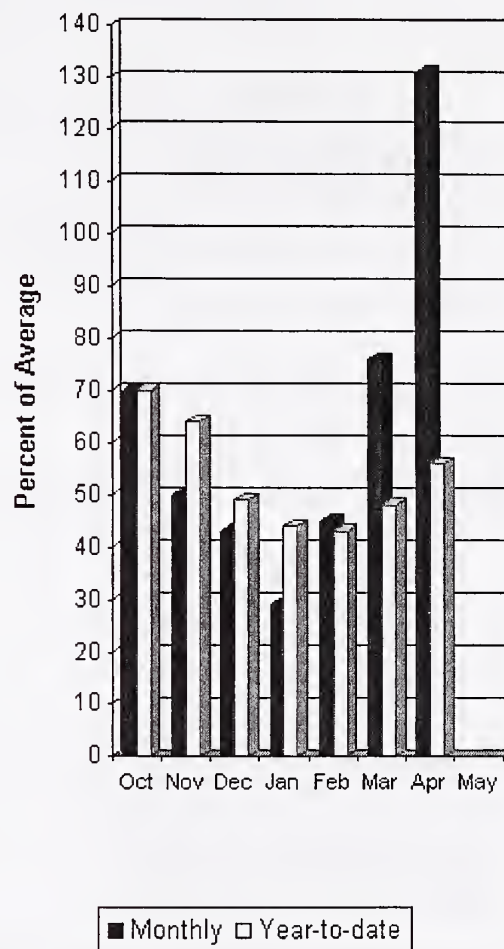


Colville - Pend Oreille River Basins

Mountain Snowpack*



Basin Precipitation*



*Based on selected stations

The May – September average forecast for the Kettle River streamflow is 72%, Colville at Kettle Falls is 46%, and Priest River near the town of Priest River is 56%. April streamflow was 40% of average on the Pend Oreille River, 56% on the Columbia at the International Boundary and 33% on the Kettle River. May 1 snow cover was 69% of average in the Pend Oreille Basin and 63% in the Kettle River Basin. Bunchgrass Meadows SNOTEL site had only 19 inches of snow water. Normally Bunchgrass would have 26.9 inches on May 1. Precipitation during April was 131% of average, bringing the year-to-date precipitation to 56% of average. Reservoir storage in Lake Roosevelt was reported to be 48% of average and 12% of capacity on May 1. Average temperatures were 1 degree below normal for April and 3 degrees below for the water year.

For more information contact your local Natural Resources Conservation Service office.

Colville - Pend Oreille River Basins

Streamflow Forecasts - May 1, 2001

Forecast Point	Forecast Period	<----- Drier ----- Future Conditions ----- Wetter ----->						30-Yr Avg. (1000AF)
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
PEND OREILLE Lake Inflow (2)	MAY-JUL	4271	5169	5780	52	6391	7289	11070
	MAY-SEP	4705	5702	6380	52	7058	8055	12290
PRIEST near Priest River (1,2)	MAY-JUL	238	315	350	56	385	462	626
	MAY-SEP	246	338	380	56	422	514	679
PEND OREILLE bl Box Canyon (2)	MAY-JUL	3860	4979	5740	51	6501	7620	11220
	MAY-SEP	4260	5498	6340	51	7182	8420	12430
CHAMOKANE CREEK near Long Lake	MAY-AUG	2.15	4.33	5.80	68	7.27	9.45	8.52
	JUL-AUG	1.59	1.84	2.00	64	2.16	2.41	3.12
COLVILLE at Kettle Falls	MAY-SEP	13.1	29	39	46	50	65	84
	MAY-JUL	11.7	25	34	47	43	56	73
KETTLE near Laurier	MAY-SEP	872	1032	1140	72	1248	1408	1582
	MAY-JUL	855	992	1085	73	1178	1315	1489
COLUMBIA at Birchbank (1,2)	MAY-JUL	18332	20579	21600	67	22621	24868	32090
	MAY-SEP	23236	26099	27400	67	28701	31564	40760
COLUMBIA at Grand Coulee Dm (1,2)	MAY-SEP	30223	34402	36300	63	38198	42377	57921
	MAY-JUL	25113	28542	30100	63	31658	35087	47614

COLVILLE - PEND OREILLE RIVER BASINS Reservoir Storage (1000 AF) - End of April

Reservoir	Usable Capacity	*** Usable Storage ***		
		This Year	Last Year	Avg
ROOSEVELT	5232.0	622.3	1878.6	1310.0
BANKS		NO REPORT		

COLVILLE - PEND OREILLE RIVER BASINS Watershed Snowpack Analysis - May 1, 2001

Watershed	Number of Data Sites	This Year as % of	
		Last Yr	Average
COLVILLE RIVER	0	0	0
PEND OREILLE RIVER	87	94	68
KETTLE RIVER	6	65	63

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

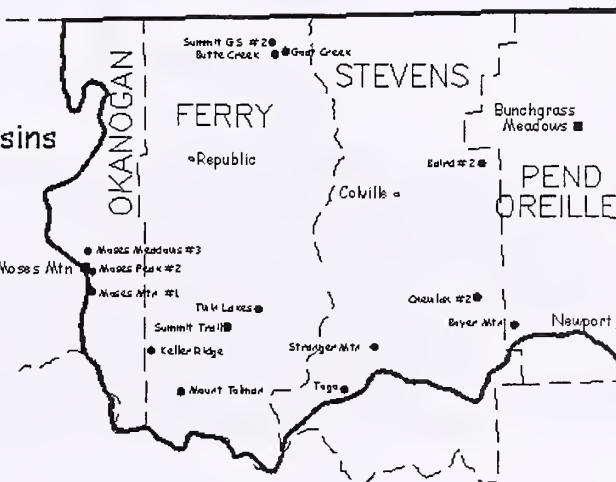
The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

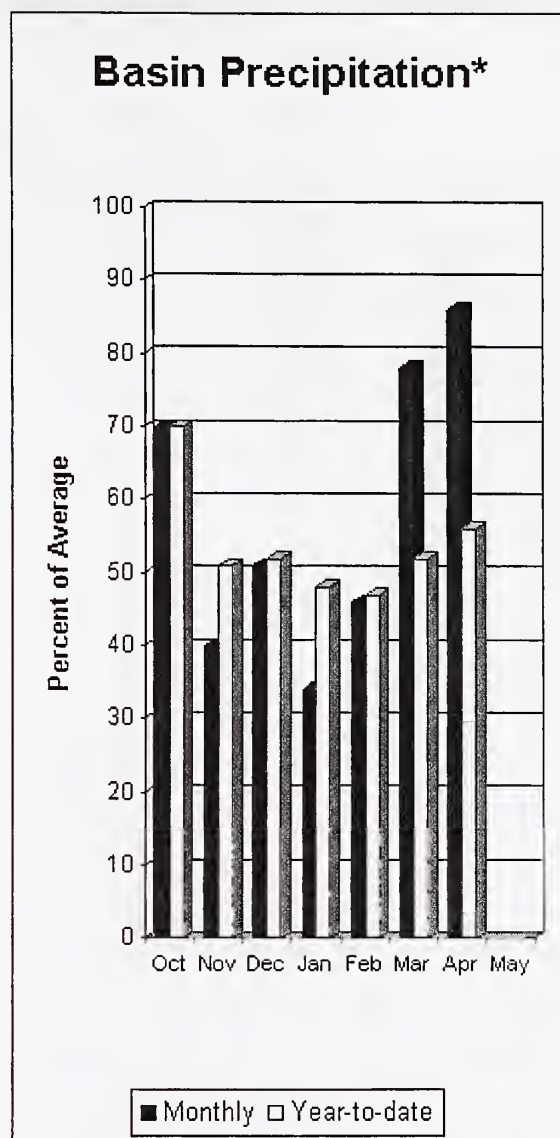
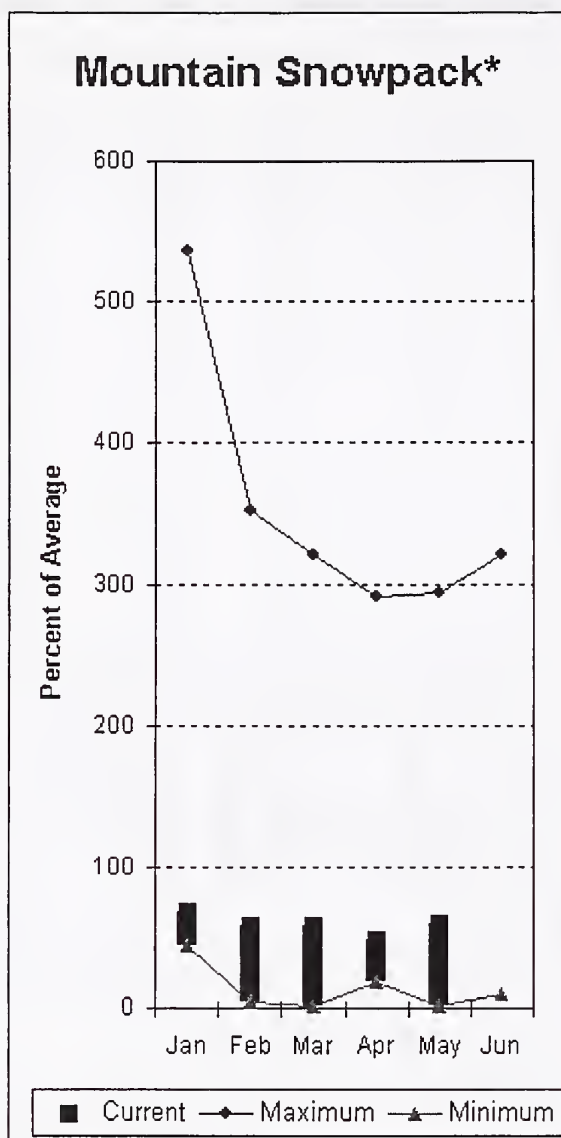
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Colville-Pend Oreille River Basins
Percent of Average
May 1, 2001

Snowpack - 69%
Precipitation - 56%
Reservoir Capacity - 12%



Okanogan - Methow River Basins



*Based on selected stations

Summer runoff average forecast for the Okanogan River is 47%, Similkameen River is 45%, Methow River is 50% and Salmon Creek is 58%. May 1 snow cover on the Okanogan was 61% of average and Methow was 56%. Moses Mountain SNOTEL site had a May 1 reading of 68% of average. April precipitation in the Okanogan-Methow was 86% of average, with precipitation for the water year at 56% of average. April streamflow for the Methow River was 21% of average, 42% for the Okanogan River and 52% for the Similkameen. Snow-water content at Salmon Meadows SNOTEL, near Conconully, melted out on April 30. Average for this site is 1.1 inches on May 1. Combined storage in the Conconully Reservoirs was 13,400-acre feet, which is 57% of capacity and 84% of the May 1 average. Temperatures were near normal for the past month and 1 degree above normal for the water year.

For more information contact your local Natural Resources Conservation Service office.

Okanogan - Methow River Basins

Streamflow Forecasts - May 1, 2001

		<<===== Drier ===== Future Conditions ===== Wetter =====>							
Forecast Point	Forecast Period	=====		Chance Of Exceeding *		=====		30-Yr Avg. (1000AF)	
		90%	70%	50% (Most Probable)		30%	10%		
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)		
SIMILKAMEEN near Nighthawk (1)	MAY-JUL	275	468	555	46	642	835	1205	
	MAY-SEP	293	490	580	45	670	867	1300	
OKANOGAN near Tonasket (1)	MAY-JUL	148	484	637	48	790	1126	1328	
	MAY-SEP	168	534	700	47	866	1232	1484	
SALMON CREEK near Conconully	MAY-JUL	0.5	6.5	10.5	58	14.5	21	18.0	
	MAY-SEP	0.5	6.7	11.0	58	15.3	22	18.9	
METHOW RIVER near Pateros	MAY-SEP	323	387	430	50	473	537	854	
	MAY-JUL	311	368	406	52	444	501	786	

OKANOGAN - METHOW RIVER BASINS					OKANOGAN - METHOW RIVER BASINS			
Reservoir Storage (1000 AF) - End of April					Watershed Snowpack Analysis - May 1, 2001			
Reservoir	Usable Capacity	*** This Year	Usable Last Year	*** Avg	Watershed	Number of Data Sites	This Year as % of Last Yr Average	
SALMON LAKE	10.5	6.9	7.5	8.0	OKANOGAN RIVER	19	74	61
CONCONULLY RESERVOIR	13.0	6.5	13.1	8.0	OMAK CREEK	1	53	68
					SANPOIL RIVER	0	0	0
					SIMILKAMEEN RIVER	4	135	54
					TOATS COULEE CREEK	0	0	0
					CONCONULLY LAKE	1	0	0
					METHOW RIVER	3	68	56

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

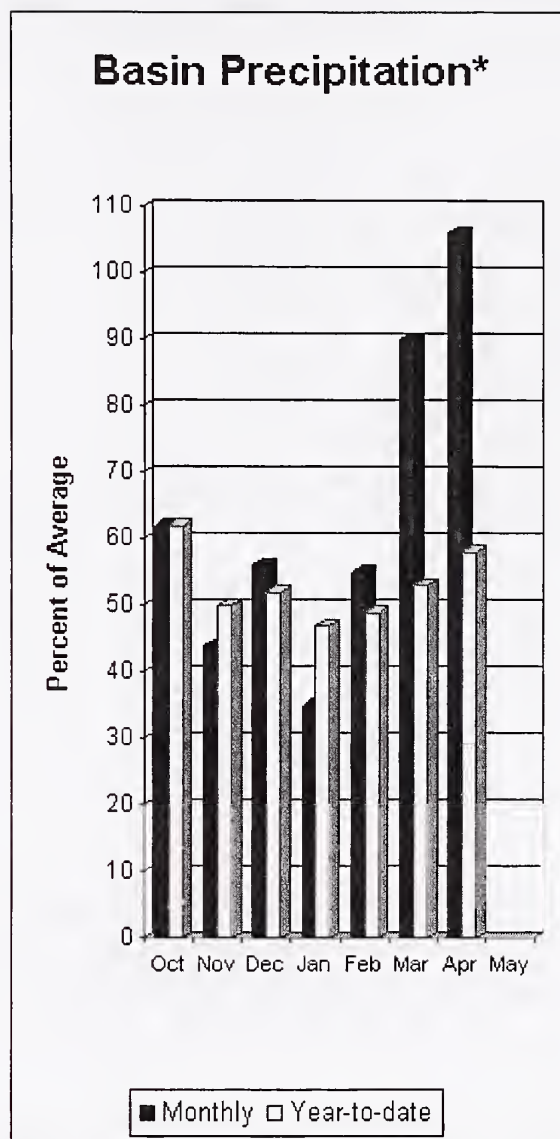
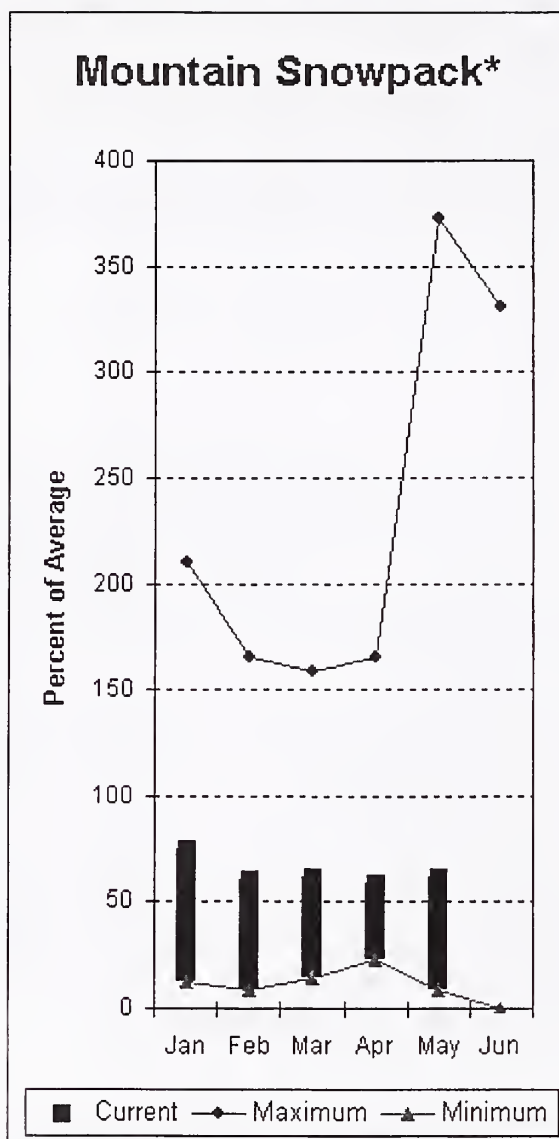
- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

Okanogan-Methow River Basins
 Percent of Average
 May 1, 2001

Snowpack - 60%
 Precipitation - 56%
 Reservoir Capacity - 57%



Wenatchee - Chelan River Basins



*Based on selected stations

Precipitation during April was 106% of average in the basin and 58% for the year-to-date. Runoff for Entiat River is forecast to be 57% of average for the summer. The May-September average forecast for Chelan River is 60%, Wenatchee River at Plain is 56% and Stehekin is 63%. Icicle, Stemilt and Squilchuck creeks are all expected to fall into the same forecast range. April average streamflows on the Chelan River were 53% and on the Wenatchee River 55%. May 1 snowpack in the combined Wenatchee basins was 62% of average. In general peak snowpack was reached in mid-April. However Lyman Lake and Miners Ridge SNOTEL sites both reported snow-water content increases and recorded new peak accumulations on May 6. Reservoir storage in Lake Chelan was 403,600-acre feet, 90% of May 1 average and 60% of capacity. Lyman Lake SNOTEL had the most snow water with 36.5 inches of water. This site would normally have 58.7 inches on May 1. Temperatures were near normal for April and for the water year.

For more information contact your local Natural Resources Conservation Service office.

Wenatchee - Chelan River Basins

Streamflow Forecasts - May 1, 2001

		<<===== Drier ===== Future Conditions ===== Wetter =====>>						
Forecast Point	Forecast Period	Chance Of Exceeding *						30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
CHELAN RIVER near Chelan	MAY-SEP	509	575	620	60	665	731	1041
	MAY-JUL	440	501	543	60	585	646	905
STEHEKIN near STEHEKIN	MAY-SEP	397	443	475	63	507	553	751
	MAY-JUL	323	369	400	64	431	477	625
ENTIAT RIVER near Ardenvoir	MAY-SEP	97	110	119	57	128	141	208
	MAY-JUL	86	99	108	57	117	130	188
WENATCHEE at Plain	MAY-SEP	453	527	578	56	629	703	1042
	MAY-JUL	430	488	527	57	566	624	925
WENATCHEE R. at Peshastin	MAY-SEP	317	608	805	56	1002	1293	1428
	MAY-JUL	280	539	715	56	891	1150	1277
STEMILT nr Wenatchee (miners in)	MAY-SEP	34	61	79	57	97	124	138
ICICLE CREEK near Leavenworth	MAY-SEP	187	197	204	67	211	221	305
	MAY-JUL	163	177	187	67	197	211	279
COLUMBIA R. bl Rock Island Dam (2)	MAY-SEP	32197	36426	39300	62	42174	46403	62987
	MAY-JUL	27021	30521	32900	63	35279	38779	52239

WENATCHEE - CHELAN RIVER BASINS
Reservoir Storage (1000 AF) - End of April

WENATCHEE - CHELAN RIVER BASINS
Watershed Snowpack Analysis - May 1, 2001

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
CHELAN LAKE	676.1	403.6	329.5	448.8	CHELAN LAKE BASIN	4	60	62
					ENTIAT RIVER	1	41	150
					WENATCHEE RIVER	11	63	61
					SQUILCHUCK CREEK	0	0	0
					STEMILT CREEK	1	0	160
					COLOCKUM CREEK	1	0	208

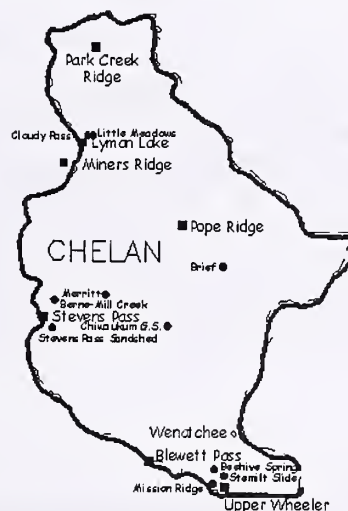
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

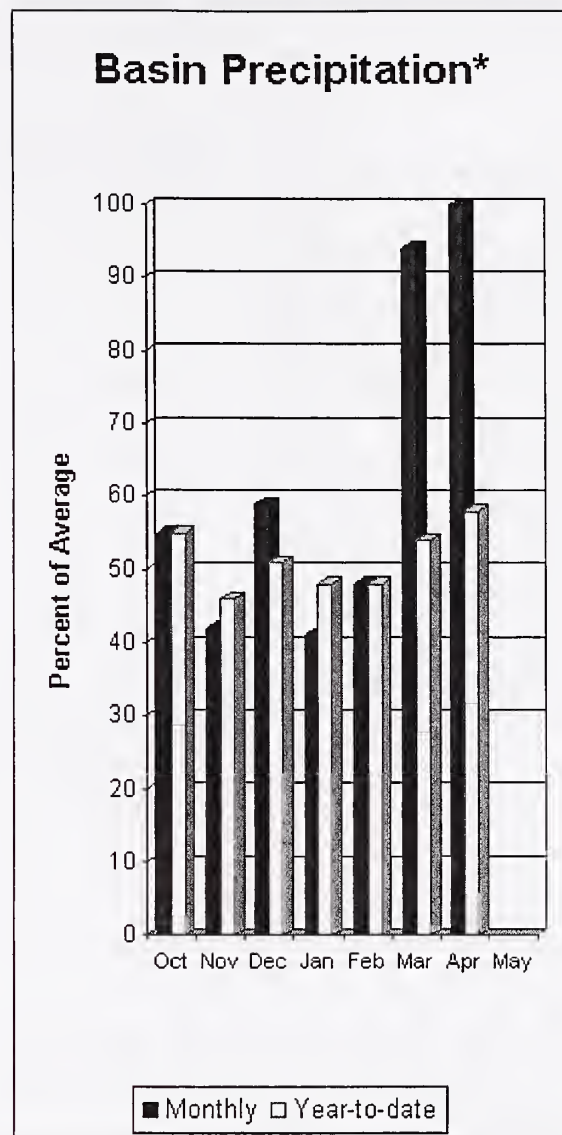
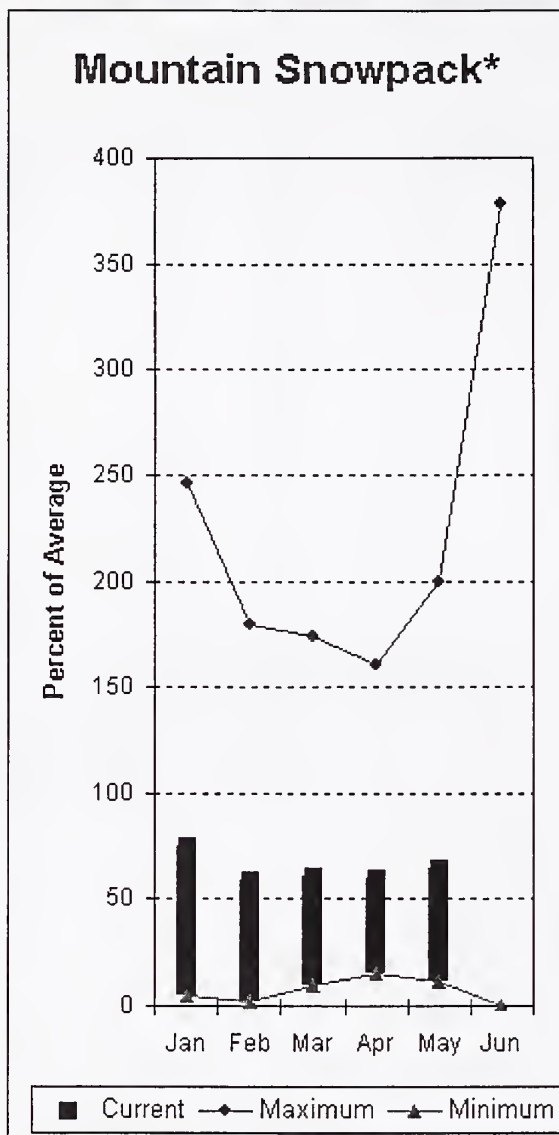
- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Wenatchee-Chelan River Basins
Percent of Average
May 1, 2001

Snowpack - 62%
Precipitation - 58%
Reservoir Capacity - 60%



Upper Yakima River Basin



*Based on selected stations

May 1 reservoir storage for the Upper Yakima reservoirs was 347,600-acre feet, 56% of average. Forecasts for the Yakima River at Cle Elum are 60% of average and the Teanaway River near Cle Elum is at 58%. Lake inflows are all forecasted to be much below average this summer. April streamflows within the basin were Yakima near Cle Elum at 81% and Cle Elum River near Roslyn at 77%. May 1 snowpack was 65% based upon 9 snow courses and SNOTEL readings within the Upper Yakima Basin. Precipitation was 100% of average for April and 58% year-to-date for water. Volume forecasts for the Yakima Basin are for natural flow. As such, they may differ from the U.S. Bureau of Reclamation's forecast for the total water supply available, which includes irrigation return flow.

For more information contact your local Natural Resources Conservation Service office.

Upper Yakima River Basin

Streamflow Forecasts - May 1, 2001

Forecast Point	Forecast Period	<----- Drier ----->		Future Conditions		>----- Wetter ----->		30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	50% (Most Probable) (% AVG.)	30% (1000AF)	10% (1000AF)	
KEEACHELUS LAKE INFLOW	MAY-JUL	47	57	63	66	70	80	96
	MAY-SEP	48	61	69	65	77	90	107
KACHESS LAKE INFLOW	MAY-JUL	40	46	51	59	56	63	86
	MAY-SEP	39	48	53	58	59	67	92
CLE ELUM LAKE INFLOW	MAY-JUL	174	192	205	61	218	236	339
	MAY-SEP	187	210	225	60	240	263	378
YAKIMA at Cle Elum	MAY-JUL	331	372	400	61	428	469	657
	MAY-SEP	358	410	445	60	480	532	740
TEANAWAY near Cle Elum	MAY-JUL	38	47	53	58	59	68	91
	MAY-SEP	41	50	57	58	63	72	97

UPPER YAKIMA RIVER BASIN Reservoir Storage (1000 AF) - End of April

Reservoir	Usable Capacity	*** Usable Storage ***		
		This Year	Last Year	Avg
KEEACHELUS	157.8	53.6	106.7	119.0
KACHESS	239.0	151.6	223.8	197.0
CLE ELUM	436.9	142.4	356.1	308.0

UPPER YAKIMA RIVER BASIN Watershed Snowpack Analysis - May 1, 2001

Watershed	Number of Data Sites	This Year as % of	
		Last Yr	Average
UPPER YAKIMA RIVER	9	60	65

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

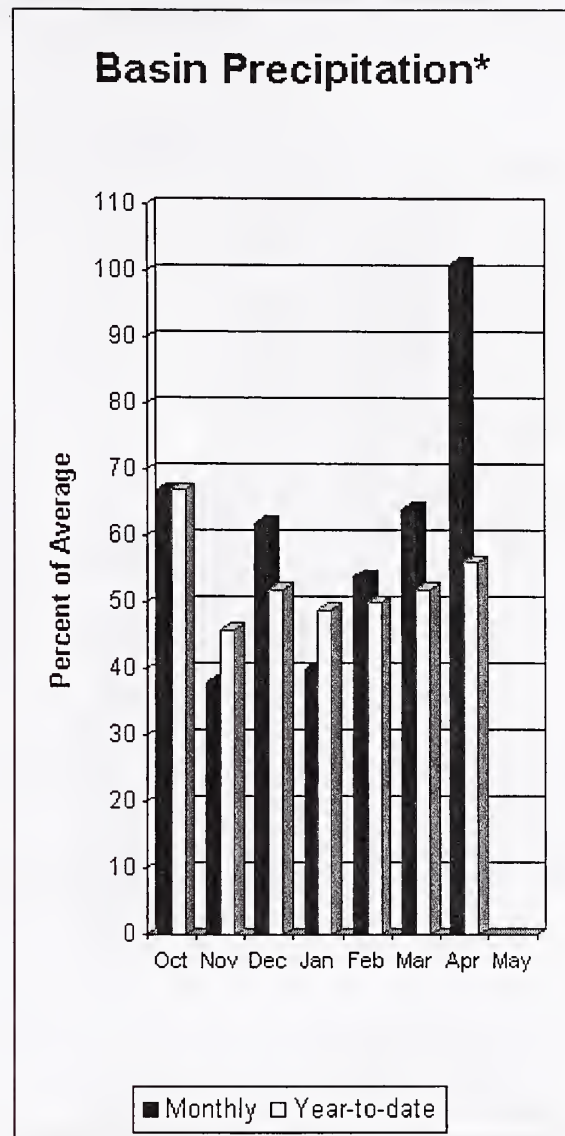
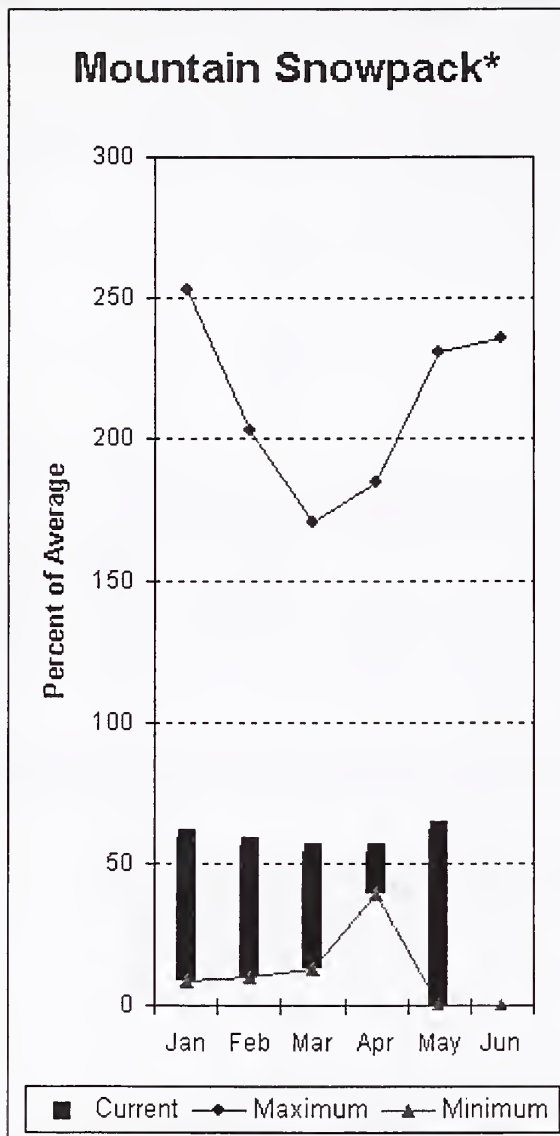
- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
 (2) - The value is natural flow - actual flow may be affected by upstream water management.



Upper Yakima River Basin Percent of Average May 1, 2001

Snowpack - 65%
 Precipitation - 58%
 Reservoir Capacity - 42%

Lower Yakima River Basin



*Based on selected stations

April average streamflows within the basin were: Yakima River near Parker, 57%; Naches River near Naches, 45%; and Yakima River at Kiona, 33%. May 1 reservoir storage for Bumping and Rimrock reservoirs was 133,400-acre feet, 84% of average. Forecast averages for Yakima River near Parker are 54%; American River near Nile, 50%; Ahtanum Creek, 50%; and Klickitat River near Glenwood, 66%. May 1 snowpack was 62% based upon 7 snow courses and SNOTEL readings within the Lower Yakima Basin. Precipitation was 101% of average for April and 56% year-to-date for water. Temperatures were near normal for the month and 1 degree below average for the water year. Volume forecasts for Yakima Basin are for natural flow. As such, they may differ from the U.S. Bureau of Reclamation's forecast for the total water supply available, which includes irrigation return flow.

For more information contact your local Natural Resources Conservation Service office.

Lower Yakima River Basin

Streamflow Forecasts - May 1, 2001

Forecast Point	Forecast Period	<----- Drier ----->		Future Conditions		>----- Wetter ----->		30-Yr Avg. (1000AF)
		90%	70%	50% (Most Probable)	Chance Of Exceeding *	30%	10%	
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	
BUMPING LAKE INFLOW	MAY-SEP	42	53	60	51	67	78	117
	MAY-JUL	41	49	55	52	61	69	106
AMERICAN RIVER near Nile	MAY-SEP	36	45	51	50	57	66	102
	MAY-JUL	33	42	47	51	53	61	92
RIMROCK LAKE INFLOW	MAY-SEP	79	94	105	52	116	131	204
	MAY-JUL	66	77	85	51	93	104	167
NACHES near Naches	MAY-SEP	276	329	365	53	401	454	686
	MAY-JUL	256	299	329	54	359	402	609
AHTANUM CREEK nr Tampico (2)	MAY-SEP	10.5	15.6	19.0	50	22	28	38
	MAY-JUL	9.4	13.9	17.0	50	20	25	34
YAKIMA near Parker	MAY-SEP	672	775	845	54	915	1018	1580
	MAY-JUL	610	702	765	55	828	920	1390
Klickitat near Glenwood	MAY-JUN	43	51	57	66	63	71	87
	MAY-SEP	58	69	77	66	85	96	117

LOWER YAKIMA RIVER BASIN Reservoir Storage (1000 AF) - End of April

Reservoir	Usable Capacity	*** Usable Storage ***		
		This Year	Last Year	Avg
BUMPING LAKE	33.7	11.6	30.4	15.0
RIMROCK	198.0	121.8	187.4	144.0

LOWER YAKIMA RIVER BASIN Watershed Snowpack Analysis - May 1, 2001

Watershed	Number of Data Sites	This Year as % of	
		Last Yr	Average

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

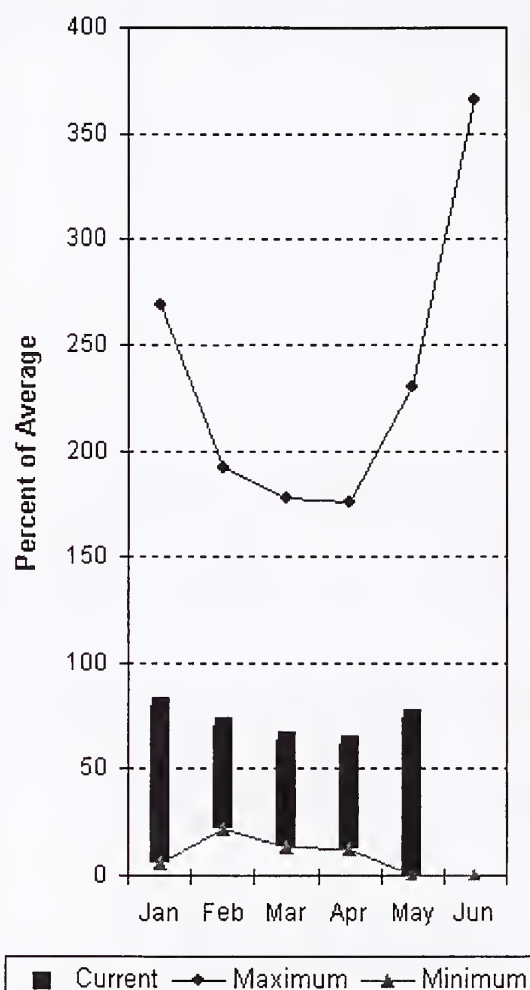


Lower Yakima River Basin
Percent of Average
May 1, 2001

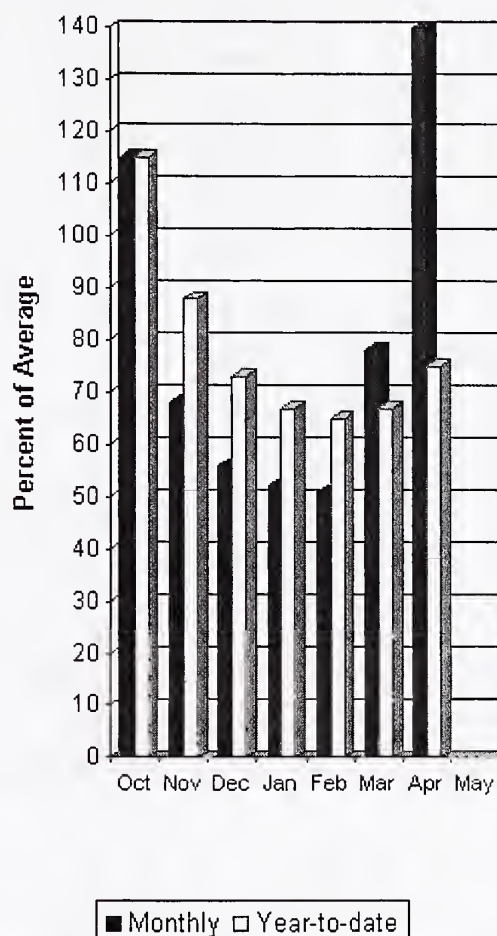
Snowpack - 62%
Precipitation - 56%
Reservoir Capacity - 58%

Walla Walla River Basin

Mountain Snowpack*



Basin Precipitation*



*Based on selected stations

April precipitation was 140% of average, increasing the year-to-date precipitation to 75% of average. May 1 average snowpack was at 74%. The forecast for the coming summer is for 78% of average streamflow in the South Fork Walla Walla River and 102% for Mill Creek. April streamflow was 144% of average for the Walla Walla River. The Touchet SNOTEL site had 20.3 inches of snow-water-equivalent. The average May 1 reading for this site is 27.3 inches. Average temperatures were 1-2 degrees below normal for April and have averaged 2-3 degrees below normal for the water year.

For more information contact your local Natural Resources Conservation Service office.

Walla Walla River Basin

Streamflow Forecasts - May 1, 2001

		<<===== Drier =====		Future Conditions		===== Wetter =====>>		
Forecast Point	Forecast Period	=====		Chance Of Exceeding *		=====		30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
MILL CREEK at Walla Walla	MAY-SEP	4.49	6.38	7.67	102	8.96	10.85	7.50
	MAY-JUL	4.26	6.15	7.43	102	8.71	10.60	7.30
SF WALLA WALLA near Milton-Freewater	MAY-JUL	24	28	31	82	33	37	37
	MAY-SEP	31	36	39	78	42	47	50

WALLA WALLA RIVER BASIN Reservoir Storage (1000 AF) - End of April					WALLA WALLA RIVER BASIN Watershed Snowpack Analysis - May 1, 2001			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					WALLA WALLA RIVER	2	95	74

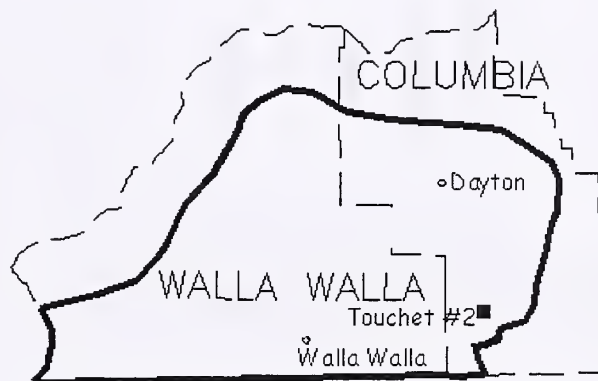
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The average is computed for the 1961-1990 base period.

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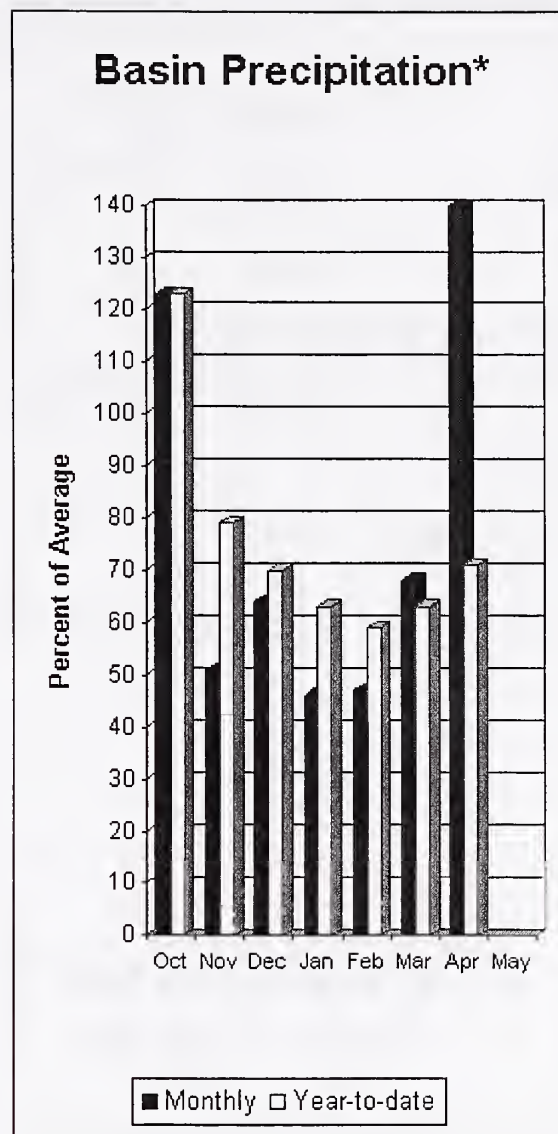
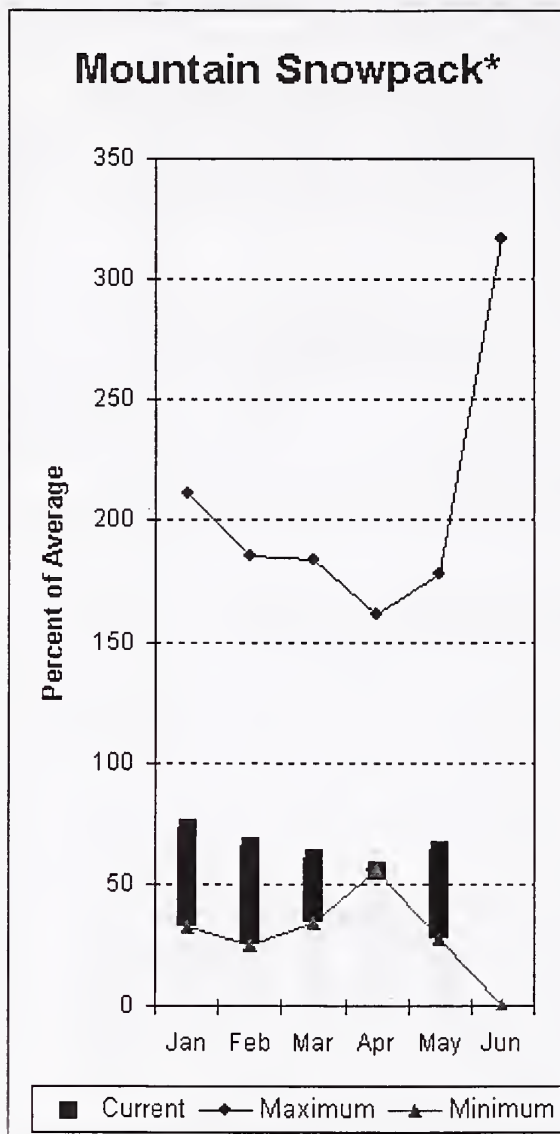
Walla Walla River Basin
Percent of Average
May 1, 2001

Snowpack - 74%
Precipitation - 75%



High Ridge ■

Lower Snake River Basin



*Based on selected stations

The May - September forecast is for 45% of average streamflow in the Snake River below Lower Granite Dam, 62% for Grande Ronde at Troy, and 47% for Clearwater River at Spalding. April precipitation was 140% of average, bringing the year-to-date precipitation to 71% of average. May 1 snowpack was at 64% of average. April streamflow was 50% of average for Snake River below Lower Granite Dam and 61% for Grande Ronde River near Troy. Average temperatures were 1 degree below normal for April and remained 2 degrees below normal for the water year.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - May 1, 2001

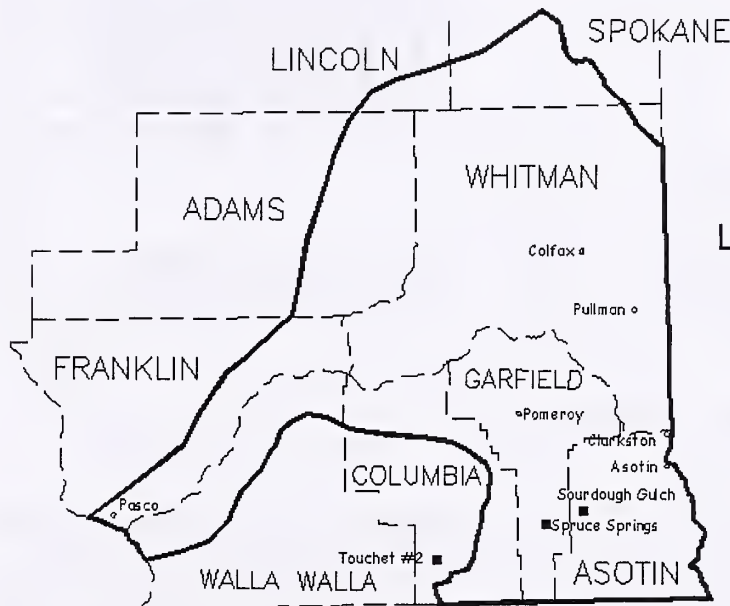
Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>		Chance Of Exceeding *				30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
GRANDE RONDE at Troy (1)	MAY-JUL	296	464	540	62	616	784	872
	MAY-SEP	333	520	605	62	690	877	970
CLEARWATER at Spalding (1,2)	MAY-JUL	1715	2461	2800	47	3139	3885	5972
	MAY-SEP	1859	2658	3020	47	3382	4181	6405
SNAKE blw Lower Granite Dam (1,2)	MAY-JUL	4190	6452	7480	44	8508	10770	16940
	MAY-SEP	4945	7562	8750	45	9938	12555	19650

LOWER SNAKE RIVER BASIN Reservoir Storage (1000 AF) - End of April					LOWER SNAKE RIVER BASIN Watershed Snowpack Analysis - May 1, 2001			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					LOWER SNAKE, GRANDE RONDE	13	74	64

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

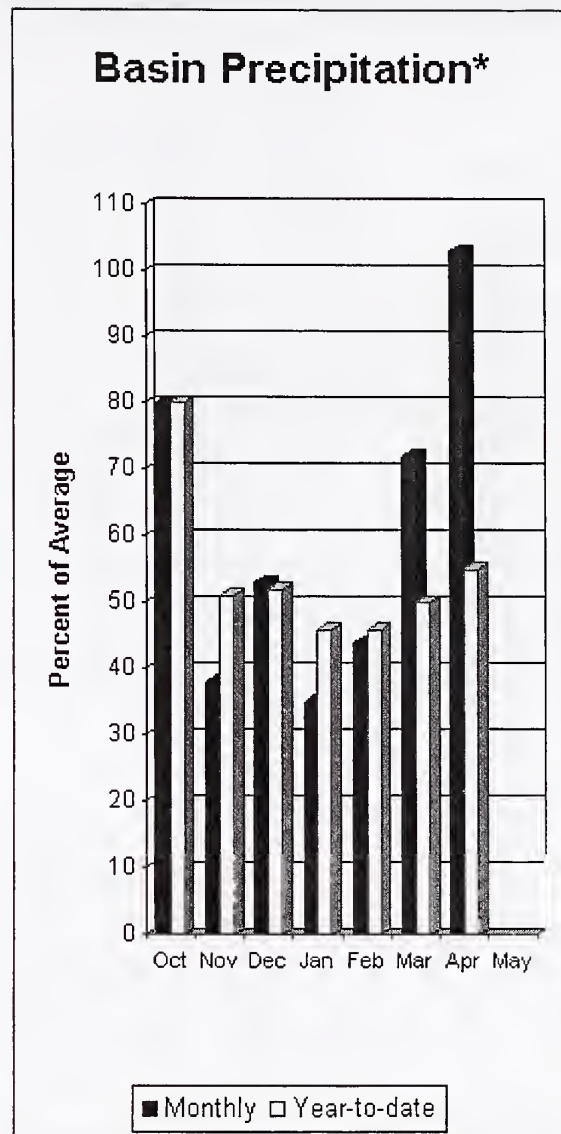
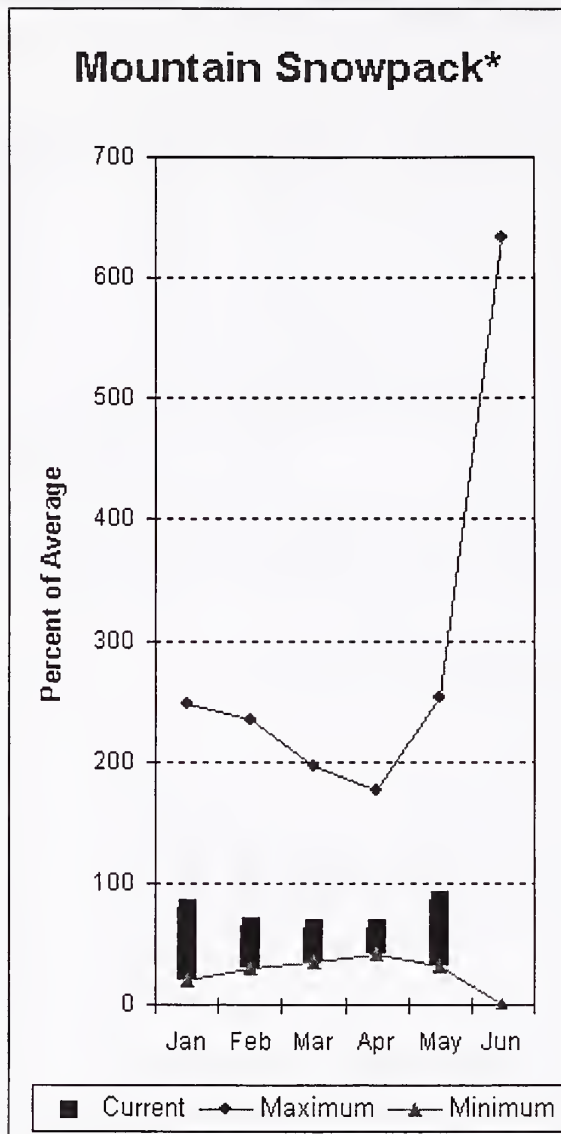
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Lower Snake River Basin
Percent of Average
May 1, 2001

Snowpack - 64%
Precipitation - 71%



*Based on selected stations

Forecasts for May – September streamflows within the basin are Lewis at Ariel; 73%, Cowlitz at Castle Rock; 59% and the Columbia at The Dalles; 54% of average. April average streamflow for Cowlitz River was 74% and 74% for Lewis River. April precipitation was 103% of average and the water-year average was 55%. May 1 snow cover for Cowlitz River was 82%, and Lewis River was 90% of average. Paradise Park SNOTEL reported the most water content for the basin with 51.9 inches. Average May 1 water content is 61.8 inches. Average temperatures were 1 degree below normal during April and have remained near average throughout the water year.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - May 1, 2001

Forecast Point	Forecast Period	<<===== Drier =====>>		Future Conditions		===== Wetter =====>>		30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
LEWIS at Ariel (2)	MAY-JUL	399	473	523	75	573	647	697
	MAY-SEP	493	569	620	73	671	747	850
COWLITZ R. bl Mayfield Dam (2)	MAY-SEP	50	514	830	54	1146	1610	1531
	MAY-JUL	55	445	711	55	977	1367	1292
COWLITZ R. at Castle Rock (2)	MAY-SEP	203	797	1200	59	1603	2197	2021
	MAY-JUL	177	671	1007	60	1343	1837	1679
KLICKITAT near Glenwood	MAY-JUN	43	51	57	66	63	71	87
	MAY-SEP	58	69	77	66	85	96	117
COLUMBIA R. at The Dalles (2)	MAY-SEP	35044	41865	46500	54	51135	57956	85635
	MAY-JUL	29344	35034	38900	55	42766	48456	71413

COWLITZ - LEWIS RIVER BASINS Reservoir Storage (1000 AF) - End of April					COWLITZ - LEWIS RIVER BASINS Watershed Snowpack Analysis - May 1, 2001			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					LEWIS RIVER	4	49	90
					COWLITZ RIVER	7	69	82

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

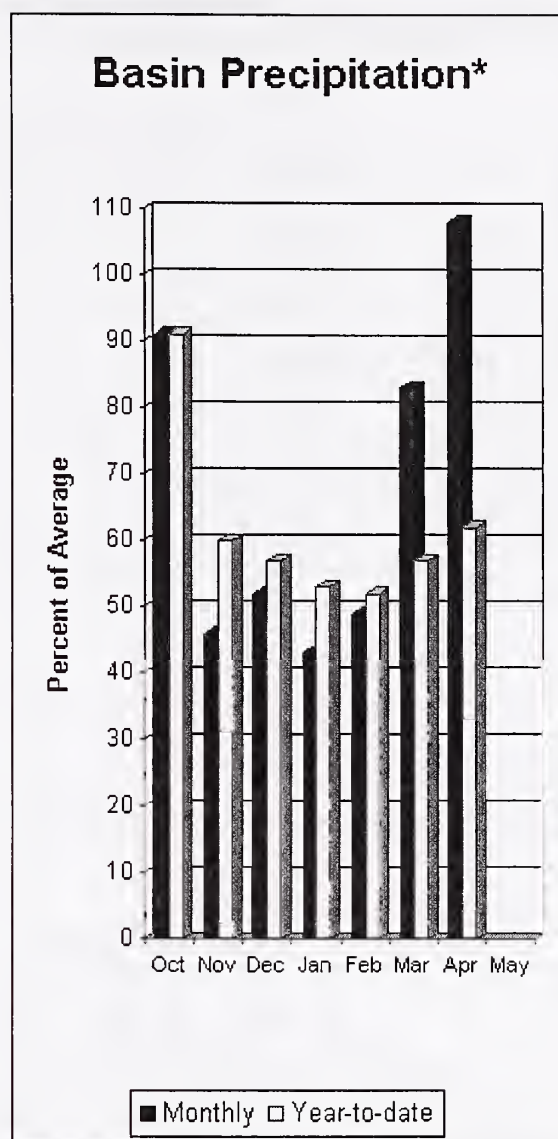
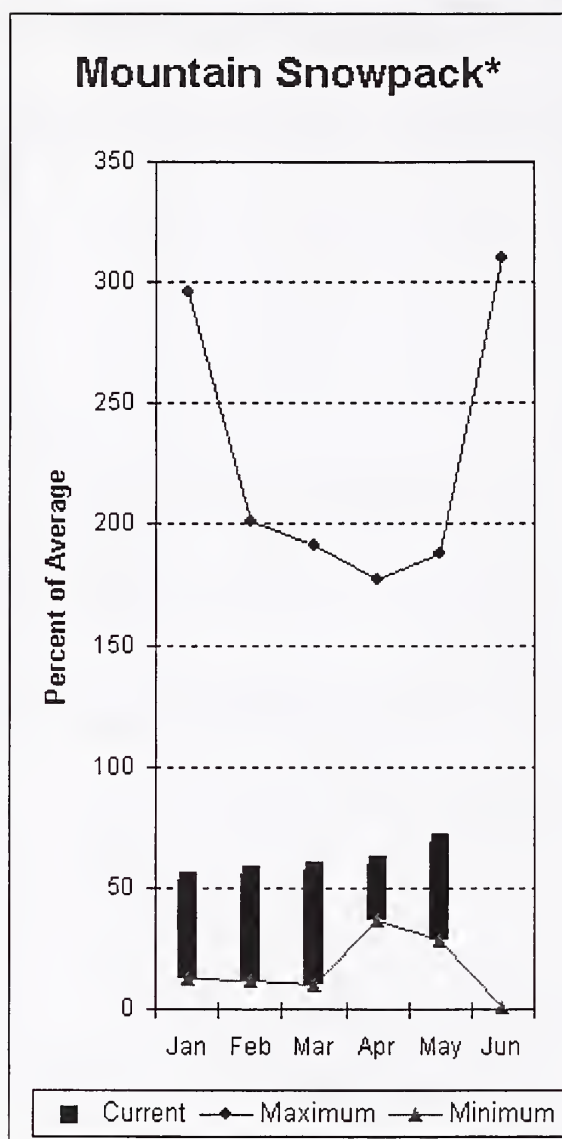
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Cowlitz-Lewis River Basins
Percent of Average
May 1, 2001

Snowpack - 86%
Precipitation - 55%

White - Green River Basins



*Based on selected stations

Summer runoff is forecast to be 70% of normal for the Green River below Howard Hanson Dam and 71% for the White River near Buckley. May 1 snowpack was 62% of average in both White River and Puyallup river basins and 82% in Green River Basin. Water content on May 1 at Corral Pass SNOTEL, at an elevation of 6,000 feet, was 24.8 inches. This site has a May 1 average of 29.5 inches. April precipitation was 108% of average, bringing the water year-to-date to 62% of average for the basins. Average temperatures in the area were near normal.

For more information contact your local Natural Resources Conservation Service office.

White - Green - Puyallup River Basins

Streamflow Forecasts - May 1, 2001

Forecast Point	Forecast Period	<<===== Drier =====		Future Conditions		===== Wetter =====>>		30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	Chance Of Exceeding * (% AVG.)	30% (1000AF)	10% (1000AF)	
WHITE near Buckley (1,2)	MAY-JUL	147	201	226	64	251	305	354
	MAY-SEP	234	293	320	71	347	406	449
GREEN below Howard Hanson (1,2)	MAY-JUL	81	105	116	68	127	151	170
	MAY-SEP	95	125	138	70	151	181	198

WHITE - GREEN - PUYALLUP RIVER BASINS Reservoir Storage (1000 AF) - End of April

Reservoir	Usable Capacity	*** Usable Storage ***		
		This Year	Last Year	Avg

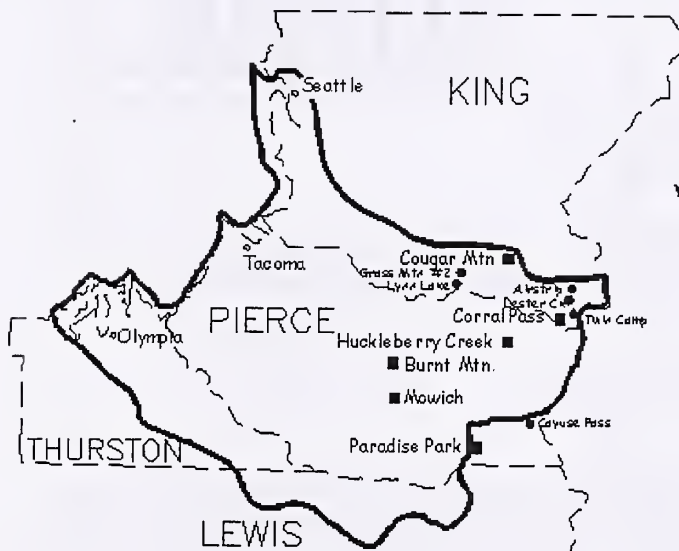
WHITE - GREEN - PUYALLUP RIVER BASINS Watershed Snowpack Analysis - May 1, 2001

Watershed	Number of Data Sites	This Year as % of	
		Last Yr	Average
WHITE RIVER	3	55	62
GREEN RIVER	5	62	82
PUYALLUP RIVER	3	55	62

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

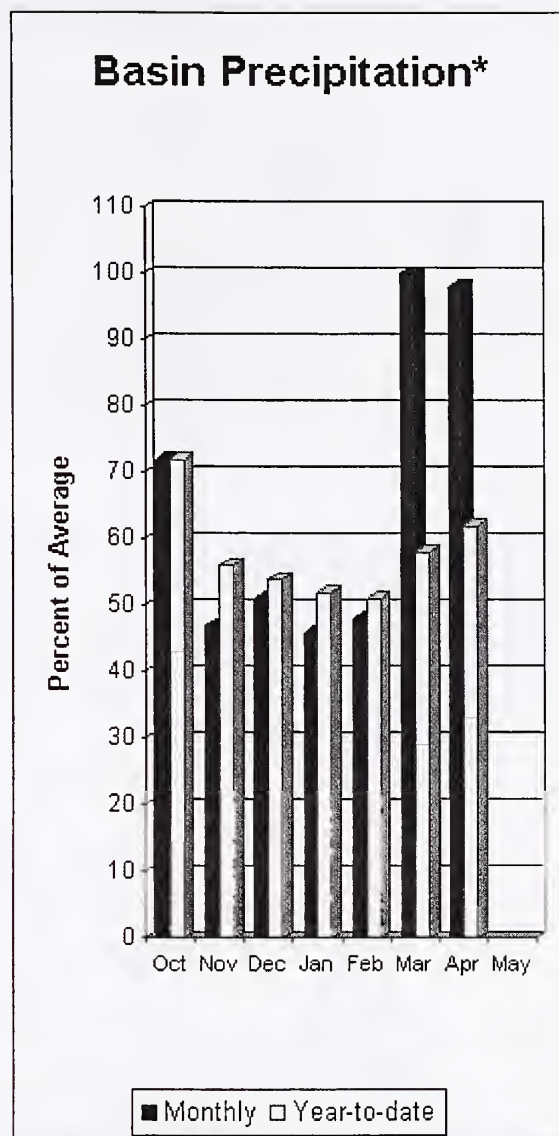
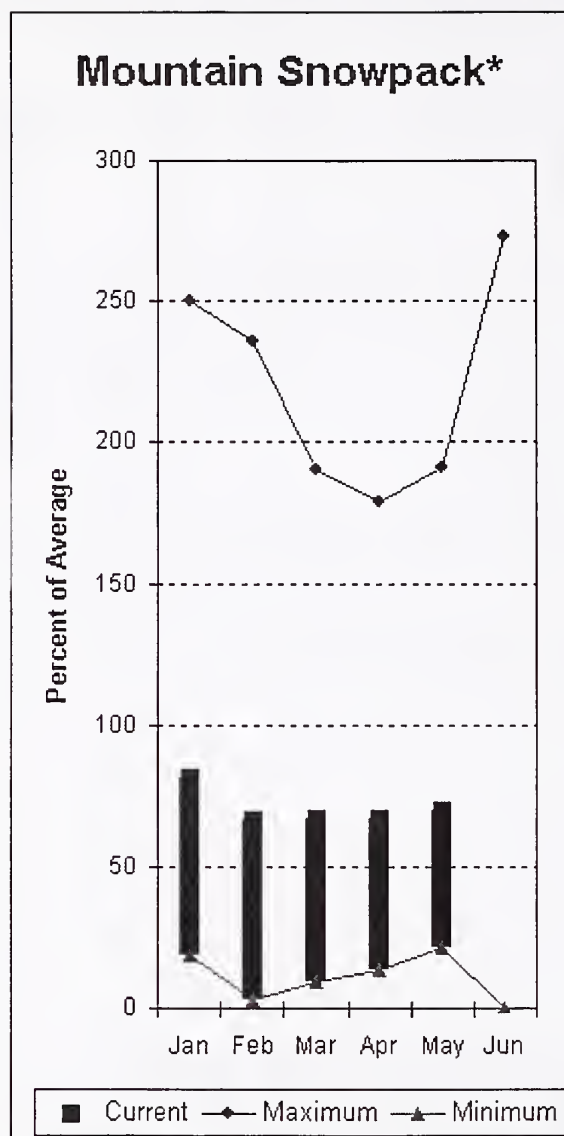
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White-Green-Puyallup Basins
Percent of Average
May 1, 2001

Snowpack - 69%
Precipitation - 62%

Central Puget Sound River Basins



*Based on selected stations

Forecast for spring and summer flows are: 85% for Cedar River near Cedar Falls; 82% for Rex River; 81% for South Fork of the Tolt River; and 89% for Cedar River at Cedar Falls. Basin-wide precipitation for April was 98% of average, bringing water-year-to-date to 62% of average. May 1 average snow cover in Cedar River Basin was 65%, Tolt River Basin was 72%, Snoqualmie River Basin was 70%, and Skykomish River Basin was 73%. Stevens Pass SNOTEL, at 4,070 feet, had 20.3 inches of water content. Average May 1 water content is 32.1 inches. April temperatures were near normal for the past month.

For more information contact your local Natural Resources Conservation Service office.

Central Puget Sound River Basins

Streamflow Forecasts - May 1, 2001

Forecast Point	Forecast Period	<<----- Drier ----- Future Conditions ----- Wetter ----->>						
		=====		Chance Of Exceeding *		=====		30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
CEDAR near Cedar Falls	MAY-JUL	35	42	46	83	51	58	56
	MAY-SEP	41	49	54	85	60	68	64
REX near Cedar Falls	MAY-JUL	9.5	12.8	15.0	78	17.2	21	19.2
	MAY-SEP	12.0	15.7	18.2	82	21	24	22
CEDAR RIVER at Cedar Falls	MAY-JUL	15.1	34	46	86	59	77	54
	MAY-SEP	12.7	34	49	89	63	85	55
SOUTH FORK TOLT near Index	MAY-JUL	6.3	7.8	8.8	77	9.8	11.3	11.4
	MAY-SEP	8.1	10.0	11.3	81	12.6	14.5	13.9

CENTRAL PUGET SOUND RIVER BASINS Reservoir Storage (1000 AF) - End of April					CENTRAL PUGET SOUND RIVER BASINS Watershed Snowpack Analysis - May 1, 2001			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					CEDAR RIVER	4	71	65
					TOLT RIVER	1	67	46
					SNOQUALMIE RIVER	4	63	64
					SKYKOMISH RIVER	2	70	61

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

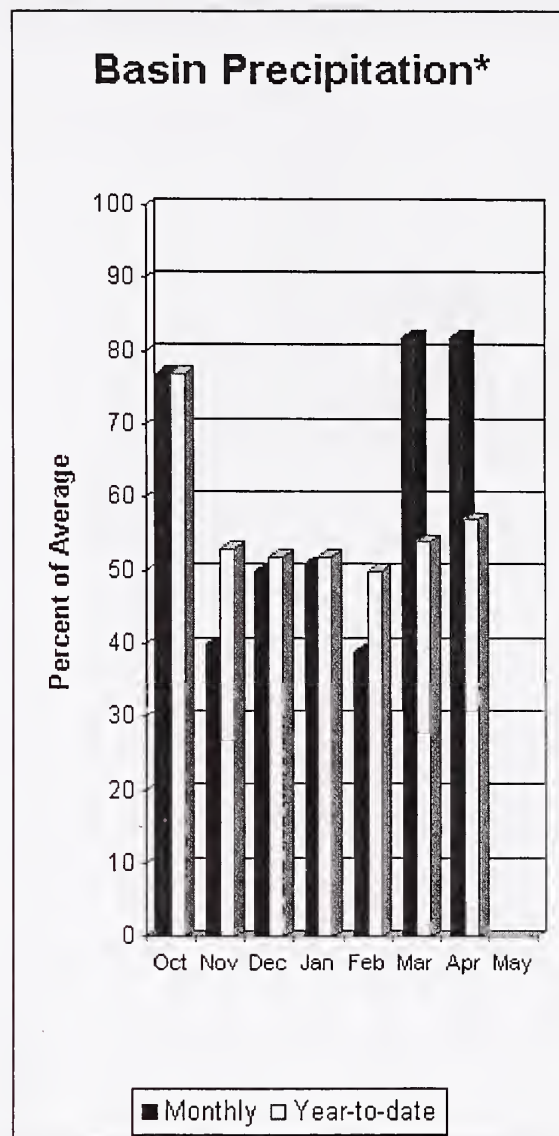
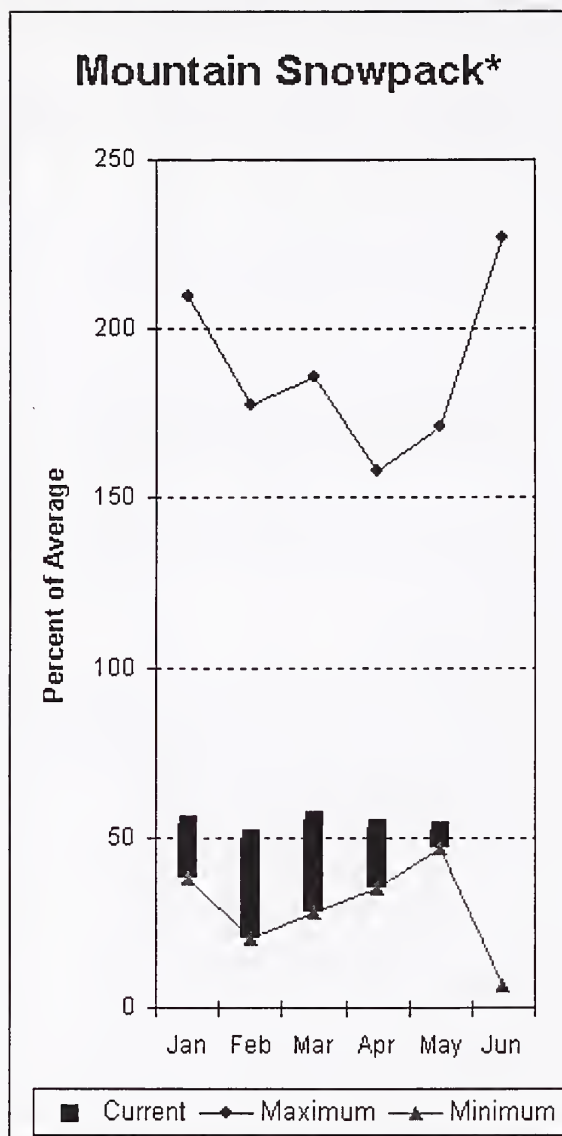
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Central Puget Sound Basins
Percent of Average
May 1, 2001

Snowpack - 70%
Precipitation - 62%



North Puget Sound River Basins



*Based on selected stations

Forecast for Skagit River streamflow is 69% of average for the spring and summer period. April streamflow in Skagit River was 53% of average. Other forecast points included Baker River at 74% and Thunder Creek at 84% of average. Basin-wide precipitation for April was 82% of average, bringing water-year-to-date to 57% of average. May 1 average snow cover in Skagit River Basin was 48%, Baker River Basin was 56% and Nooksack River Basin was 52%. Rainy Pass SNOTEL, at 4,780 feet, had 21.8 inches of water content. Average May 1 water content was 36.8 inches. May 1 Skagit River reservoir storage was 115% of average and 53% of capacity. Average April temperatures were near normal for the basin and remain near average for the water year.

For more information contact your local Natural Resources Conservation Service office.

North Puget Sound River Basins

Streamflow Forecasts - May 1, 2001

Forecast Point	Forecast Period	<<===== Drier =====		Future Conditions		===== Wetter =====>>		30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	Chance Of Exceeding * (% AVG.)	30% (1000AF)	10% (1000AF)	
THUNDER CREEK near Newhalem	MAY-JUL	145	160	171	82	182	197	209
	MAY-SEP	233	249	259	84	269	285	308
SKAGIT at Newhalem (2)	MAY-JUL	897	983	1042	63	1101	1187	1649
	MAY-SEP	1188	1282	1345	69	1408	1502	1961
BAKER RIVER near Concrete	MAY-JUL	379	430	464	66	498	549	703
	MAY-SEP	563	638	690	74	742	817	930

NORTH PUGET SOUND RIVER BASINS Reservoir Storage (1000 AF) - End of April

Reservoir	Usable Capacity	*** Usable Storage ***		
		This Year	Last Year	Avg
ROSS	1404.1	739.0	713.4	644.4
DIABLO RESERVOIR	90.6	85.9	86.3	---
GORGE RESERVOIR		NO REPORT		

NORTH PUGET SOUND RIVER BASINS Watershed Snowpack Analysis - May 1, 2001

Watershed	Number of Data Sites	This Year as % of	
		Last Yr	Average
SKAGIT RIVER	12	59	48
BAKER RIVER	3	48	56
NOOKSACK RIVER	2	53	52

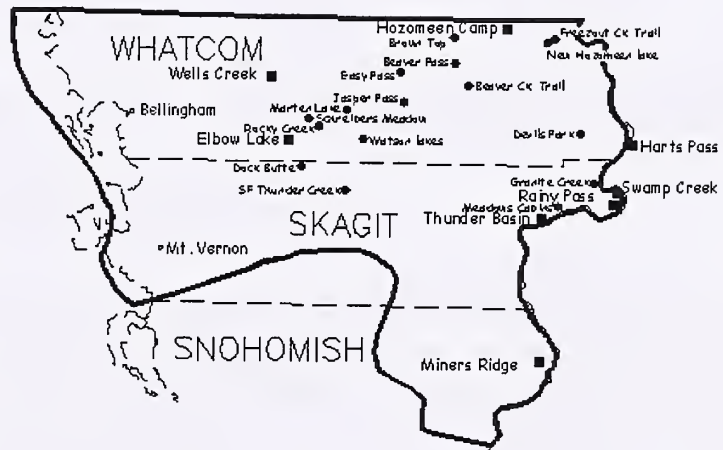
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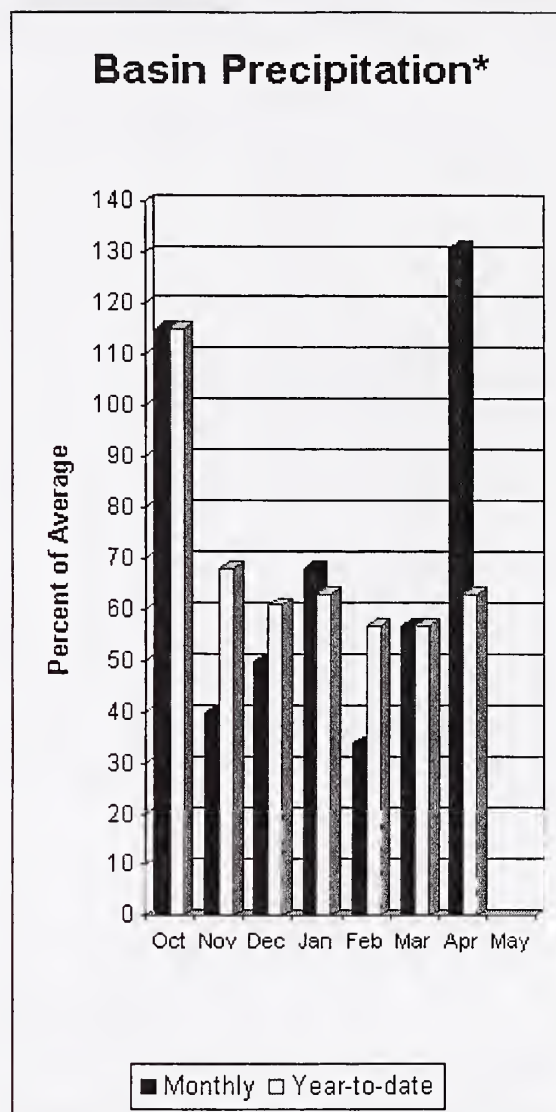
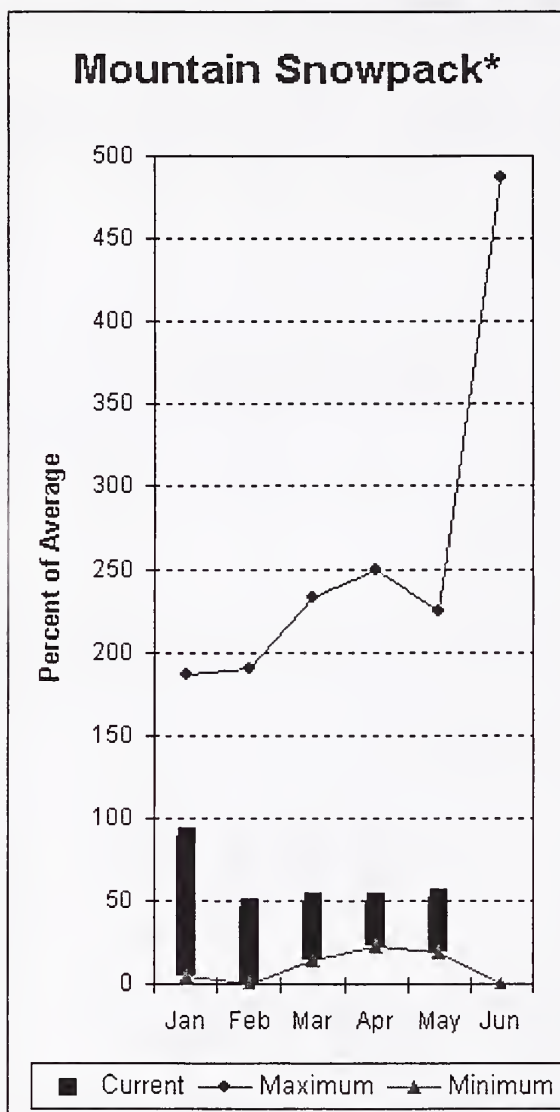
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 (2) - The value is natural flow - actual flow may be affected by upstream water management.

North Puget Sound Basins
Percent of Average
May 1, 2001

Snowpack - 52%
Precipitation - 57%
Reservoir Capacity - 53%



Olympic Peninsula River Basins



*Based on selected stations

Forecasted average runoff for streamflow in Dungeness River Basin is 65% and 67% for Elwha River. Big Quilcene and Wynoochee rivers should expect below average runoff this summer also. April precipitation was 131% of average. Precipitation has accumulated at 63% of average for the water year. April precipitation at Quillayute was 9.73 inches. The thirty-year average for April is 7.15 inches. May 1 snow cover in Morse Creek Basin was 45% average, Dungeness River Basin was 58% and Quilcene River Basin was 95%. The Mount Crag SNOTEL near Quilcene had 21.3 inches of snow-water-equivalent on May 1. Average for this site is 22.4 inches. Temperatures were 1 degree below average for the month and near average for the water year.

For more information contact your local Natural Resources Conservation Service office.

Olympic Peninsula River Basins

Streamflow Forecasts - May 1, 2001

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						
		Chance Of Exceeding *		Chance Of Exceeding *		Chance Of Exceeding *		30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
DUNGENESS near Sequim	MAY-SEP	73	81	87	65	93	101	134
	MAY-JUL	60	66	70	65	74	80	107
ELWHA near Port Angeles	MAY-SEP	245	272	290	67	308	335	434
	MAY-JUL	197	219	233	67	247	269	348

OLYMPIC PENINSULA RIVER BASINS Reservoir Storage (1000 AF) - End of April

Reservoir	Usable Capacity	*** Usable Storage ***		
		This Year	Last Year	Avg

OLYMPIC PENINSULA RIVER BASINS Watershed Snowpack Analysis - May 1, 2001

Watershed	Number of Data Sites	This Year as % of	
		Last Yr	Average
OLYMPIC PENINSULA	4	64	52
ELWHA RIVER	1	31	17
MORSE CREEK	1	52	45
DUNGENESS RIVER	1	104	58
QUILCENE RIVER	1	77	95
WYNOOCHEE RIVER	0	0	0

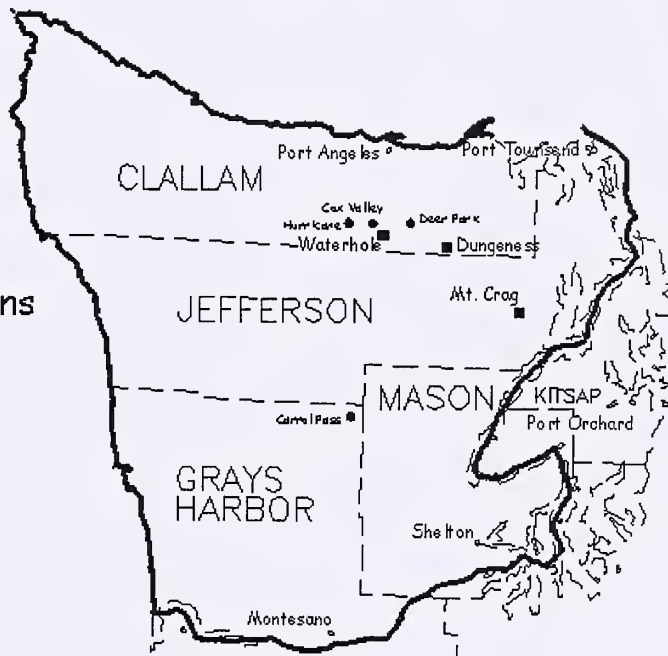
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

Olympic Peninsula River Basins
Percent of Average
May 1, 2001

Snowpack - 52%
Precipitation - 63%



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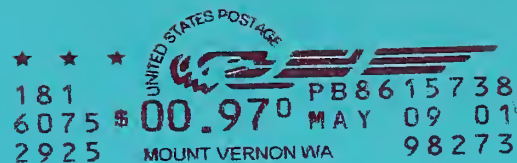
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Natural Resources Conservation Service
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The Following Organizations Cooperate with the Natural Resources Conservation Service in Snow Survey Work*:

Canada	Ministry of the Environment Investigations Branch, Victoria, British Columbia
State	Washington State Department of Ecology Washington State Department of Natural Resources
Federal	Department of the Army Corps of Engineers U.S. Department of Agriculture Forest Service U.S. Department of Commerce NOAA, National Weather Service U.S. Department of Interior Bonneville Power Administration Bureau of Reclamation Geological Survey National Park Service Bureau of Indian Affairs
Local	City of Tacoma City of Seattle Chelan County P.U.D. Pacific Power and Light Company Puget Sound Power and Light Company Washington Water Power Company Snohomish County P.U.D. Colville Confederated Tribes Spokane County Yakama Indian Nation Whatcom County Pierce County
Private	Okanogan Irrigation District Wenatchee Heights Irrigation District Newman Lake Homeowners Association Whitestone Reclamation District

*Other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.



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Natural Resources Conservation Service
Spokane, WA

